Ravi Maths Tuition

Lines and Angles

9th Standard

Mathematics

Multiple Choice Question 99 x 1 = 99

1) The minimum number of points required to draw a line is

(a) 1 (b) 2 (c) 3 (d) 4

2) In how many points two intersecting lines intersect?

(a) 4 (b) 3 (c) 2 (d) 1

3) How many types of angles are formed between the edges of plane surfaces?

(a) Of different types (b) Of only one type (c) Of only two types (d) of only three types

4) An angle which measures between 0^0 and 90^0 is called

(a) a straight angle (b) an acute angle (c) a right angle (d) an obtuse angle

5) An obtuse angle

(a) measures between 0^0 and 90^0 (b) is greater than 90^0 but less than 180^0

(c) is exactly equal to 90^0 (d) is exactly equal to 180^0

6) Two angles whose sum is 90^0 are called

(a) supplementary angles (b) complementary angles (c) corresponding angles (d) alternate angles

7) The sum of two complimentary angles is

(a) 180^0 (b) 360^0 (c) 90^0 (d) None of these

8) The angles whose sum is 180^0 are called

(a) supplementary angles (b) complementary angles (c) alternate angles (d) corresponding angles

9) The sum of two supplementary angles is

(a) 90^0 (b) 180^0 (c) 360^0 (d) None of these

10) The complement of an angle m is:

(a) m (b) 90^0 +m (c) 90^0 -m (d) mx90^0

11) An right angle

(a) measures between 0^0 and 90^0 (b) is exactly equal to 90^0

(c) is greater than 90^0 but less than 180^0 (d) is equal to 180^0

12) A reflex angle

(a) is greater than 180^0 but less than 360^0 (b) is exactly equal to 180^0 (c) is exactly equal to 90^0

(d) is greater than 90^0 but less than 180^0

13) Two angles whose sum is 90^0 are called

(a) Supplementary angles (b) complimentary angles (c) corresponding angles (d) alternate angles

14) An angle which is greater than 90^0 and less than 180^0 is called

(a) an acute angle (b) a straight angle (c) an obtuse angle (d) an straight angle

15) An angle which is exactly equal to 90^0 is called

(a) an obtuse angle (b) an acute angle (c) a straight angle (d) a right angle

16) An angle which is greater than 90^0 and less than 180^0 is called

(a) a right angle (b) a straight angle (c) an acute angle (d) an obtuse angle

17) A straight angle

(a) is greater than 90^0 but less than 180^0 (b) is exactly equal to 90^0

(c) measures between 0^0 and 90^0 (d) is exactly equal to 180^0

18) The angle supplementary to 60^0 is

(a) 30^0 (b) 120^0 (c) 45^0 (d) 300^0

19) Find the measure of the angle which is complement of itself

(a) 30^0 (b) 90^0 (c) 45^0 (d) 180^0

20) Find the measure of the angle which is supplement of itself

(a) 30^0 (b) 90^0 (c) 45^0 (d) 180^0

21) The compliment of $(90^0 - a^0)$ is

(a) $-a^0$ (b) $90^0 + a^0$ (c) $90^0 - a^0$ (d) a^0

22) The angle complementary to $90^0 - 9^0$ is

(a) $90^0 + 9^0$ (b) 9^0 (c) $180^0 - 9^0$ (d) $360^0 - 9^0$

23) The angle of supplementary to $90^0 + 9^0$ is

(a) $90^0 + 9^0$ (b) $90^0 - 9^0$ (c) $180^0 - +9^0$ (d) $180^0 - 9^0$

24) The angle supplementary to $180^0 - 9^0$ is

(a) 9^0 (b) 180^0 (c) $180^0 + 9^0$ (d) $90^0 + 9^0$

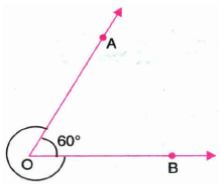
25) Which of the following is not a pair of complementary angles?

(a) $60^0, 30^0$ (b) $56^0, 34^0$ (c) $0^0, 90^0$ (d) $150^0, 30^0$

26) Which of the following is not a pair of supplementary angles?

(a) $90^0, 90^0$ (b) $32^0, 58^0$ (c) $0^0, 180^0$ (d) $76,104^0$

27) In the following figure, the reflex angle AOB is equal to



(a) 60^0, (b) 120^0, (c) 300^0, (d) 360^0,

28) The angle which is equal to 8 times its compliment is:

(a) 80^0 (b) 72^0 (c) 90^0 (d) 88^0

29) If the measure of an angle is twice the measure of its supplementary angle, then the measure of the angle is

(a) 60^0 (b) 90^0 (c) 120^0 (d) 80^0

30) The angle which exceeds its complimentary angle by 30^0

(a) 50^0 (b) 120^0 (c) 60^0 (d) 80^0

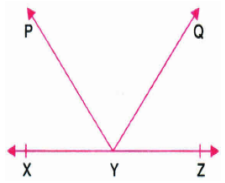
31) Two complementary angles are in the ratio 4:5 then angles are:

(a) $90^0, 90^0$ (b) $40^0, 50^0$ (c) $30^0, 150^0$ (d) $45^0, 45^0$

32) Two angles measure $(30 - a)^0$ and $(125 + 2a)^0$ If each one is the supplement of the other then the value of a is

(a) 45^0 (b) 35^0 (c) 25^0 (d) 65^0

33) In the given figure XYZ is a straight line.If $\angle XYP + \angle ZYQ = 85^0$ then $\angle PYQ$ is



(a) 95^0 (b) 85^0 (c) 90^0 (d) 75^0

34) We can draw two different lines in

(a) Only one way (b) two different ways (c) three different ways (d) None of these

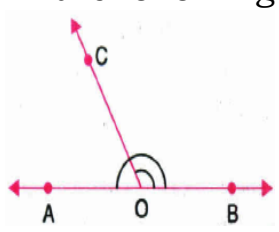
35) A line indicates

(a) Only one direction (b) two directions (c) no direction (d) None of these

36) The length of the common perpendiculars at different points on parallel lines is the same and is called

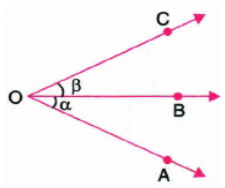
(a) the distance between the parallel lines (b) the altitude (c) the median (d) None of these

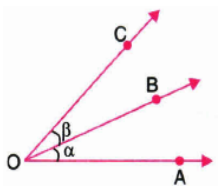
37) In the following figure $\angle AOB$ and $\angle BOC$ are:

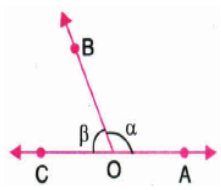


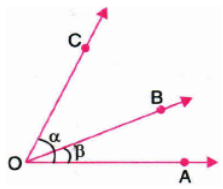
(a) Supplementary angles (b) complementary angles (c) adjacent angles (d) None of these

38) Which one of the following pairs is not a pair of adjacent angles?

(a) 

(b) 

(c) 

(d) 

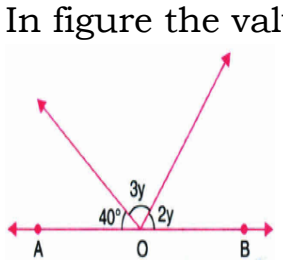
39) A pair of angles is called linear pair if the sum of two adjacent angles is:

(a) 90^0 (b) 180^0 (c) 230^0 (d) 360^0

40) The value of x in figure is:

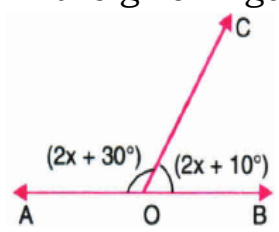
(a) 80^0 (b) 20^0 (c) 25^0 (d) 40^0

41) In figure the value of y is:



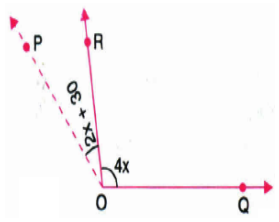
(a) 28^0 (b) 32^0 (c) 36^0 (d) 44^0

42) In the given figure if AOB is a straight line, then $\angle BOC$ is



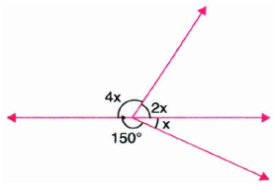
(a) 80^0 (b) 70^0 (c) 60^0 (d) 20^0

43) In the given figure the value of x which makes POQ a straight line is:



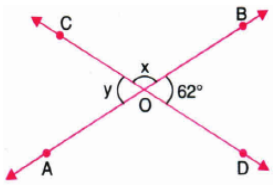
(a) 35 (b) 30 (c) 25 (d) 40

44) In figure value of x is



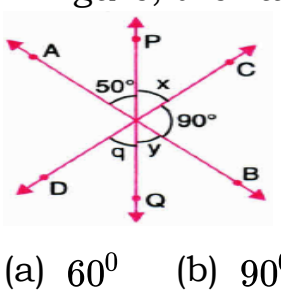
(a) 30^0 (b) 40^0 (c) 30^0 (d) 50^0

45) In the following figure two straight lines AB and CD intersect each other at O and angles formed at O are marked Here $\angle x - \angle y$ has value



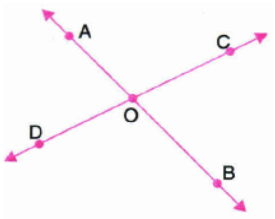
(a) 56^0 (b) 118^0 (c) 62^0 (d) 180^0

46) In figure, the value of an angle q is



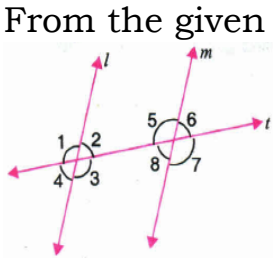
(a) 60^0 (b) 90^0 (c) 50^0 (d) 40^0

47) In figure lines AB and CD intersect at O.if $\frac{\angle AOD}{\angle DOB} = \frac{4}{5}\angle COB$



(a) 80^0 (b) 100^0 (c) 90^0 (d) 70^0

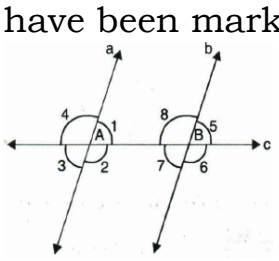
48) From the given figure , identify the incorrect statement given l || m and t is the transversal:



(a) $\angle 2$ and $\angle 5$ are supplementary (b) $\angle 2$ and 8 are supplementary

(c) $\angle 2$ and $\angle 3$ are supplementary (d) $\angle 2$ and $\angle 1$ are supplementary

49) In the following figure a transversal c intersects two parallel lines a and b The angles formed at A and B have been marked.Tell which pair of angles need not be equal?



(a) $\angle 1, \angle 2$ (b) $\angle 1, \angle 3$ (c) $\angle 1, \angle 5$ (d) $\angle 2, \angle 8$

50) If two parallel lines are cut by a transversal then which of the following is not true?

(a) Corresponding angles are equal (b) Alternate interior angles are equal

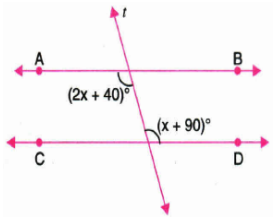
(c) Interior angles of the same side of the transversal are supplementary

(d) Interior angles on the same side of the transversal are complimentary

51) If two parallel lines are intersected by a transversal then corresponding angles are:

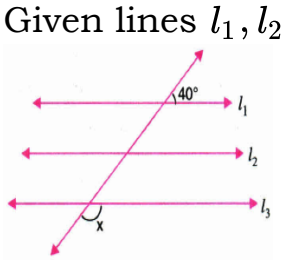
(a) Equal (b) Complimentary (c) Supplementary (d) Sum of the two angles is 360^0

52) In figure AB || CD and t is a transversal the value of x is equal to:



(a) 50^0 (b) 70^0 (c) 35^0 (d) 20^0

53) Given lines l_1, l_2 and l_3 in the figure are parallel the value of x is:

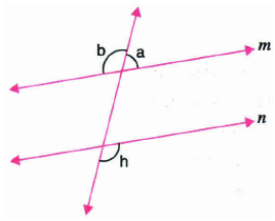


(a) 40^0 (b) 140^0 (c) 50^0 (d) 80^0

54) If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2:3 then the smaller of two angles

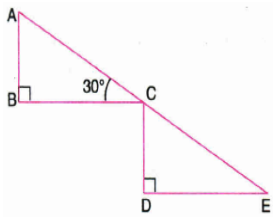
(a) 72^0 (b) 108^0 (c) 54^0 (d) 36^0

55) In figure if m || n and $\angle a : \angle b = 2 : 3$ then the measure of h is :



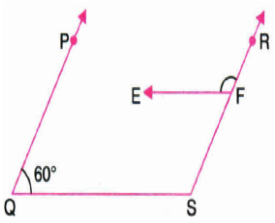
(a) 72^0 (b) 108^0 (c) 120^0 (d) 150^0

56) In figure BC || DE if $\angle ABC = \angle CDE = 90^0$ and $\angle ACB = 30^0$ then the measure of $\angle DCE$ is:



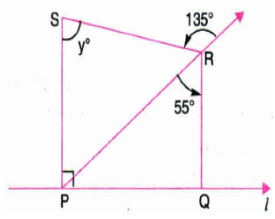
(a) 30^0 (b) 60^0 (c) 60^0 (d) 180^0

57) In the given figure PQ || RS and EF || QS If $\angle PQS = 60^0$ then the measure of $\angle RFE$



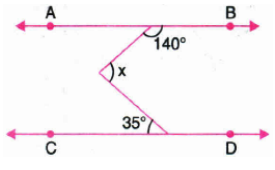
(a) 115^0 (b) 120^0 (c) 60^0 (d) 180^0

58) In the figure $PS \perp L$ and RQ $\perp$ l the degree measure of y is:



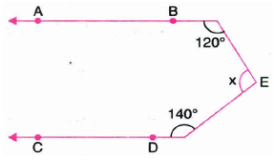
(a) 55^0 (b) 90^0 (c) 80^0 (d) 135^0

59) In figure ,AB || CD the value of x is:



(a) 35^0 (b) 40^0 (c) 60^0 (d) 75^0

60) In figure AB and CD are parallel to each other The value of x is:



(a) 90^0 (b) 100^0 (c) 120^0 (d) 140^0

61) Two lines are respectively perpendicular to two perpendicular lines then the these two lines to each other are

(a) parallel (b) perpendicular (c) inclined at some acute angle (d) intersecting at 110^0

62) Lines parallel to the same line are

(a) perpendicular to each other (b) parallel to each other (c) opposite to each other

(d) None of these

63) If l,m,n are lines in the same plane such that l intersects m and n n || m then i and n are:

(a) parallel (b) Intersecting (c) Always perpendicular (d) Always intersecting at 60^0

64) The sum of the three angles of a traingle is:

(a) one right angle (b) two right angles (c) three right angles (d) four right angles

65) Each angle of an equilateral triangle is :

(a) 50^0 (b) 90^0 (c) 80^0 (d) 60^0

66) The sum of all interior angles of a hexagon is:

(a) 720^0 (b) 360^0 (c) 540^0 (d) 1080^0

67) The sum of all the interior angles of a pentagon is

(a) 900^0 (b) 360^0 (c) 540^0 (d) 1080^0

68) The measure of each of regular angles octagon is

(a) 120^0 (b) 60^0 (c) 135^0 (d) 108^0

69) Which of the following are not the angles of a traingle?

(a) $45^0, 45^0, 90^0$ (b) $60^0, 30^0, 90^0$ (c) $40^0, 50^0, 100^0$ (d) $60^0, 60^0, 60^0$

70) Which of the following can be the angles of a quadrilateral?

(a) $90^0, 90^0, 60^0, 120^0$ (b) $85^0, 95^0, 50^0, 120^0$ (c) $90^0, 90^0, 60^0, 130^0$

(d) $90^0, 90^0, 50^0, 140^0$

71) In a regular polygon of an sides the measure of each interior angle is

(a) $\frac{360^0}{n}$ (b) $\frac{2n-4}{n}$ (c) n right angles (d) 2n right angles

72) A triangle can havee

(a) Two right angles (b) Two obtuse angles (c) All angles more than 60 (d) Two acute angles

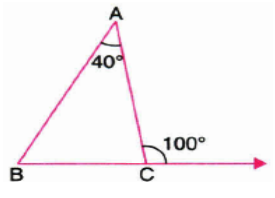
73) The exterior angles of a traingle is equal to the sum of two:

(a) Exterior angles (b) Interior angles (c) Interior opposite angles (d) Alternate angles

74) In a traingle ABC IF $\angle A = 53^0 \angle C = 44^0$ the value of b is:

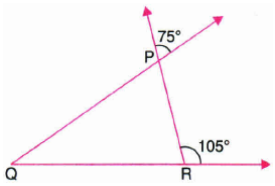
(a) 73^0 (b) 83^0 (c) 93^0 (d) 46^0

75) In figure the value of $\angle x + \angle y$ is



(a) 80^0 (b) 100^0 (c) 120^0 (d) 60^0

76) In figure $\angle PQR$ is



(a) 40^0 (b) 50^0 (c) 30^0 (d) 105^0

77) In a regular polygon of an sides the measure of each interior angle is

(a) $\frac{360^0}{n}$ (b) $\frac{2n-4}{n}$ (c) n right angles (d) 2n right angles

78) A triangle can havee

(a) Two right angles (b) Angle sum property of a traingle (c) Two obtuse angles

(d) All angles more than 60

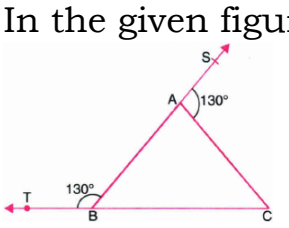
79) The exterior angles of a traingle is equal to the sum of two:

(a) Exterior angles (b) Exterior angle between (c) Interior angles (d) Interior opposite angles

80) In a traingle ABC IF $\angle A = 53^0 \angle C = 44^0$ the value of b is:

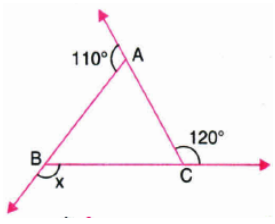
(a) 73^0 (b) 83^0 (c) 93^0 (d) 46^0

81) In the given figure if $\angle ABT = 130^0$ and $\angle CAS = 130^0$ then $\angle$ ACB is:



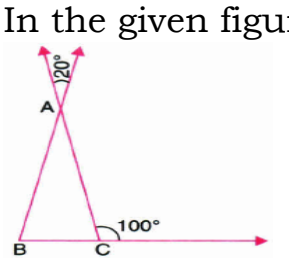
(a) 130^0 (b) 100^0 (c) 50^0 (d) 80^0

82) In figure the value of x is :



(a) 120^0 (b) 130^0 (c) 110^0 (d) 100^0

83) In the given figure the measure of $\angle ABC$ is



(a) 80^0 (b) 20^0 (c) 100^0 (d) 60^0

84) One of the angles of a triangle is 75^0 if the difference of the other two angles is 35^0 then the largest angle of the triangle has a measure of :

(a) 80^0 (b) 75^0 (c) 100^0 (d) 135^0

85) A,B,C are three angles of a triangle If A+B=145^0 B+C=100^0 then angles A,B

(a) $80^0, 65^0, 35^0$ (b) $80^0, 35^0, 65^0$ (c) $65^0, 80^0, 35^0$ (d) $35^0, 65^0, 80^0$

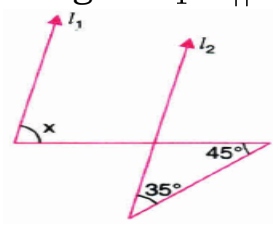
86) An exterior angle of a triangle is 105^0 and its two interior opposite angles are equal Each of these equal angles is:

(a) $37\frac{1^0}{2}$ (b) $52\frac{1^0}{2}$ (c) $72\frac{1^0}{2}$ (d) 75^0

87) If one angle of a triangle is equal to the sum of the other two then the triangle is:

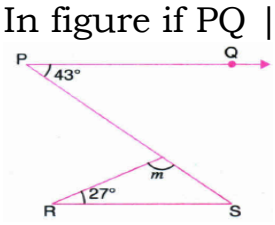
(a) an isosceles triangle (b) an obtuse angled traingle (c) an equilateral traingle (d) a right triangle

88) In figure $l_1 \parallel l_2$ the value of x is:



(a) 80^0 (b) 100^0 (c) 110^0 (d) 70^0

89) In figure if PQ || RS,then the measure of m is:



(a) 110^0 (b) 100^0 (c) 90^0 (d) 133^0

90) An exterior angle of a triangle is 80^0 and the interior opposite angles in the ratio 1 :3 measure of each interior opposite angles is:

(a) $30^0, 90^0$ (b) $40^0, 120^0$ (c) $20^0, 60^0$ (d) $30^0, 60^0$

91) The ratio of the measures of the three angles of a triangle is 2:3:4 The measure of the largest angle is:

(a) 80^0 (b) 60^0 (c) 40^0 (d) 180^0

92) The angles of a traingle are in the ratio 5:3:7 the traingle is :

(a) An acute angled triangle (b) An obtuse-angled traingle (c) A right traingle

(d) An isosceles traingle

93) The angles of a triangle are in the ratio 2:3:4 The angles are:

(a) $20^0, 60^0, 80^0$ (b) $80^0, 40^0, 60^0$ (c) $40^0, 60^0, 80^0$ (d) $60^0, 40^0, 80^0$

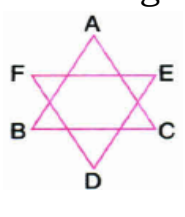
94) The ratio of the four angles of a quadrilateral is 1:2:3:4 The measure of its smallest angle is:

(a) 120^0 (b) 36^0 (c) 18^0 (d) 10^0

95) One interior angle of hexagon is 165^0 and each of the remaining interior angles is of x^0 Find the measure of each of the remaining angles

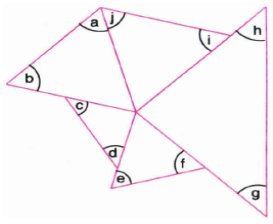
(a) 111^0 (b) 109^0 (c) 107^0 (d) 115^0

96) In the figure if $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F = k$ right angles,then k is :



(a) 2 (b) 3 (c) 4 (d) 5

97) In the figure the measure of (a+b+c+d+e+f+g+h+i+j) is

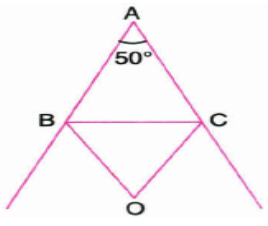


(a) 900^0 (b) 720^0 (c) 540^0 (d) 360^0

98) In $\triangle$ ABC, the bisectors of $\angle ABC$ and $\angle BCA$ intersect each other at O. The measure of $\angle BOC$ is:

(a) $90^0 + \angle A$ (b) $90^0 + \frac{\angle A}{2}$ (c) $180^0 - \angle A$ (d) $90^0 - \frac{\angle A}{2}$

99) In $\triangle$ ABC,$\angle A = 50^0$ and the external bisectors of $\angle B$ and $\angle C$ meet at O as shown in figure The measure of $\angle BOC$ is:



(a) 40^0 (b) 65^0 (c) 115^0 (d) 140^0

1 Marks 62 x 1 = 62

100) In which angle, the measure is more than 180° but less than 360°?

101) If two angles are complements of each other, then what is the type of each angle?

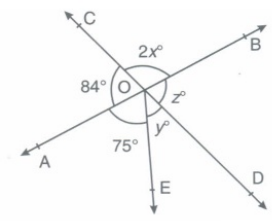
102) Find the measure of an angle which is 24 ° more than its complementary.

103) If two supplementary angles are in the ratio 3:2, then find their angles.

104) Find the supplement of $\frac{3}{5}$ of a right angle.

105) Find the measure of an angle, if six times its complement is 12° less than twice its supplement.

106) In the given figure, lines AB and CD intersect each other at O. Find the values of x, y and z



107) Prove that the bisectors of the angles of a linear pair are at right angles.

108) In the given figure, AB, CD are straight lines and OP, OQ are respectively the bisectors of ∠BOD and ∠AOC. Show that the rays OP and OQ are in the same line .

109) If an angle is 10° more than its complement, then find that angle.

110) Find the measure of the angle which is complement of itself.

111) If the ratio between two complementary angles are 2 : 3, then find the angles.

112) Which triangle has the property, 'One angle of a triangle is equal to the sum of the other two angles'?

113) If two supplementary angles are in the ratio 13:5, then find the angles.

114) In ΔABC, if ∠A : ∠B :∠C = $\frac{1}{2}$:$\frac{1}{3}$:$\frac{1}{6}$ then calculate the measures of ∠A, ∠B and ∠C.

115) In ΔABC, if ∠A = (2x - 5°), ∠B= (5x + 5°) and ∠C = (3x + 50°), then find the values of x and ∠C.

116) How many triangles can be drawn having its angles 53°, 64° and 53°? Give reason.

117) Can a triangle have all angles less than 60°? Give reason.

118) An exterior angle of a triangle is 105° and its two interior opposite angles are equal. Find each of these equal angles.

119) ΔABC is right angled at is a point on BC such that AL $\perp$ BC. Prove that ∠BAL = ∠ACB.

120) In the adjoining figure, if the bisectors of ∠ABC and ∠ACB of a triangle ABC meet at a ∠A point O, show that ∠BOC = 90° + $\frac{\angle A}{2}$.

121) Prove that triangle must have at least two acute angles.

122) If two angles of a triangle are complementary, then what type of triangle will be formed?

123) Two lines l and m are perpendicular to the same line n. Are l and m perpendicular to each other? Give reason for your answer.

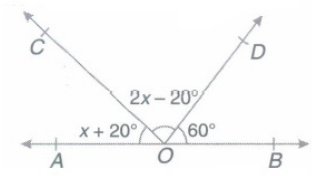
124) What is the common between the three angles of a triangle and a linear pair?

125) If one angle of a triangle is equal to the sum of the other two angles, then show that the triangle is a right angled triangle.

126) An exterior angle is drawn to a triangle. If this exterior angle is acute, then what type of triangle will be formed?

127) A transversal intersects two parallel lines. Prove that the bisectors of any pair of corresponding angles, so formed are parallel.

128) In the figure below, AOB is a straight line. Calculate the measure of $\angle COD$.



129) What is the measure of an angle which is complement of itself?

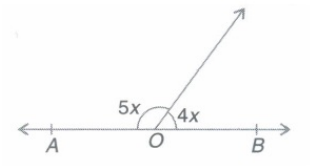
130) Write the complementary angle of 65°.

131) Write the complement if (90°-a).

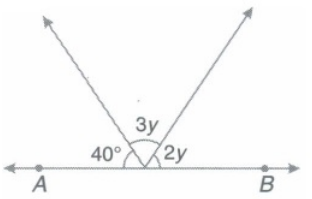
132) Write the angle which is one-fifth of its complement.

133) Two angles measure (55o+3a) and (115°-2a). If each is supplement of the other, then calculate the value of a.

134) Calculate the value of x in the figure given below.

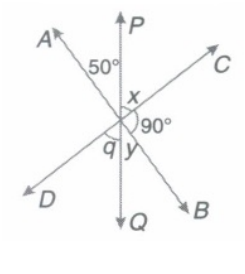


135) In the figure below, calculate the value of y.



136) Two supplementary angles are in ratio 2:7. Find the measure of angles.

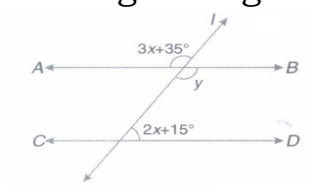
137) In the fig., below calculate the value of angle q.



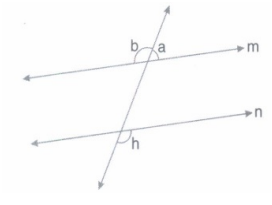
138) A transversal l intersects two lines m and n such that a pair of alternate interior angles is equal. Then, what can you say about the lines m and n?

139) If a transversal intersects two parallel lines, then which of the pairs of angles is equal.

140) In the given figure, AB||CD and 'l' is transversal, then calculate the value of 'x'

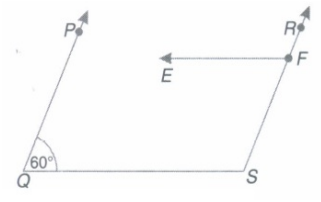


141) In fig. if m||n and $\angle a : \angle b = 2 : 3$, then what will be measured of $\angle h$?



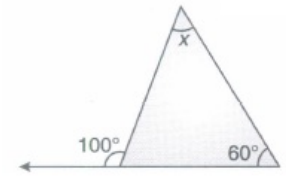
142) In the given fig., AB and CD are parallel to each other, then calculate the value of x/

143) In the given figure, PQ||RS and EF||QS. If $\angle PQS = 60^o$, then what will be the measure of $\angle RFE$?

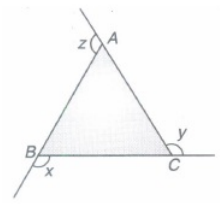


144) An exterior angle of a triangle is 80^o and two interior opposite angles are equal. What will be the measure of each?

145) What is the value of x in the figure given below?

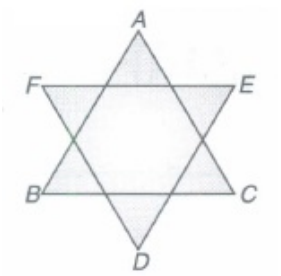


146) In the figure below, if x,y and z are exterior angles of $\triangle ABC$, then calculate the value of x+y+z.

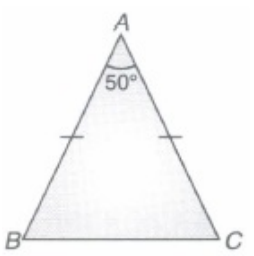


147) In $\triangle ABC, \angle A = \angle B/2 = \angle C/6,$ then what will be the measurement of $\angle A$?

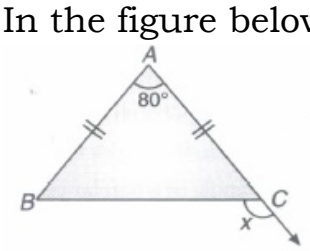
148) In the figure below, if $\angle A + \angle B + \angle C + \angle D + \angle E + \angle F = k$ right angles, then what is the value of k?



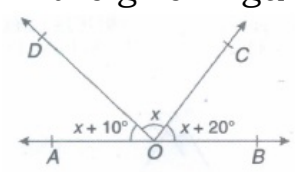
149) In the given figure, ABC is an isosceles triangle with AB=AC and $\angle A = 50^o$. Calculate $\angle B$



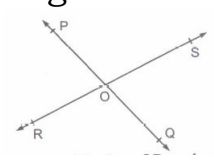
150) In the figure below, in $\triangle ABC$, AB=AC, then calculate the value of x.



151) In the given figure, what is the value of x?

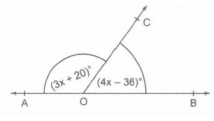


152) In the figure, lines PQ and RS intersect each other at a point O. If ∠POR : ∠ROQ = 5 : 7, find all the angles.



153) Two adjacent angles on a straight line are in the ratio 2 : 3. Find the measures of each one of these angles.

154) In the following figure, if AOB is a straight line then find the measures of ∠AOC and ∠BOC.



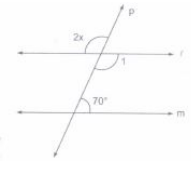
155) What is the measure of an angle whose measure is 32° less than its supplement?

156) If the supplement of an angle is 4 times of its complement, find the angle.

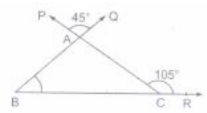
157) An exterior angle of a Δ is 110° and its two opposite interior angles are equal. What is the meausre of each angle?

158) In a rt. △ABC, ∠A = 90° and AB = AC. What are the values of ∠B and ∠C?

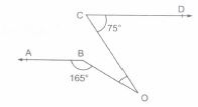
159) In figure, what is the value of x?



160) In the figure, what is the measure of ∠ABC?



161) In the following figure AB ‖ CD. Find the measure of ∠BOC.



Assertion and reason 11 x 1 = 11

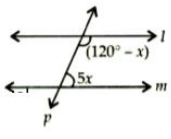
162) **Assertion :** If angles '*a* ' and '*b*' form a linear pair of angles and *a* = 40°, then *b* = 150°.
Reason : Sum of linear pair of angles is always 180°.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

163) **Assertion :** If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 5 : 4, then the greater of the two angles is 100°.
Reason : If a transversal intersects two parallel lines, then the sum of the interior angles on the same side of the transversal is 180°.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

164) **Assertion :** An angle is 14° more than its complementary angle, then angle is 52°.
Reason : Two angles are said to be supplementary if their sum of measure of angles is 180°.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

165) **Assertion :** Supplement of angle is one fourth of itself. The measure of the angle is 144º.
Reason : Two angles are said to be supplementary if their sum of measure of angles is 180º.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

166) **Assertion:** The value of x from the adjoining figure, if $l \mid\mid m$ is 150.
Reason: If two parallel lines are intersected by a transversal, then each pair of corresponding angles so formed is equal.



Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

167) **Assertion :** If two internal opposite angles of a triangle are equal and external angle is given to be 110º, then each of the equal internal angle is 55º.
Reason : A triangle with one of its angle 90º, is called a right triangle.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

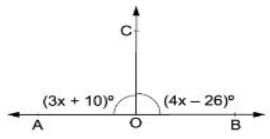
168) **Assertion :** Sum of the pair of angles 120º and 60º is supplementary.
Reason : Two angles, the sum of whose measures is 180º, are called supplementary angles.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

169) **Assertion :** A triangle can have two obtuse angles.
Reason : The sum of all the interior angles of a triangle is 1800
Codes
(a)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b)Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d)Assertion (A) is false but reason (R) is true

170) **Assertion:** The angles of a triangle are in the ratio 2 : 3 : 4. The largest angle of the triangle is 80º.
Reason: The sum of all the interior angles of a triangle is 180º.
Codes
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

171) **Assertion:** In the given figure, AOB is a straight line. $\angle AOC = (3x + 10)°$ and $\angle BOC\ (4x - 26)°$, then $\angle BOC = 86°$

Reason: The sum of angles that are formed on a straight line is equal to 180°.



Codes

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

172) **Assertion :** The angles of a triangle are in the ration 3 : 5 : 7. The triangle is acute- angled

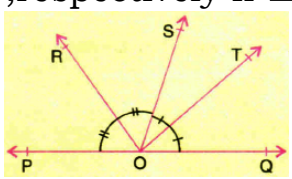
Reason : The sum of angles that are formed on a straight line is equal to 180°.

Codes

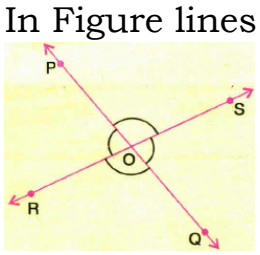
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

2 Marks 202 x 2 = 404

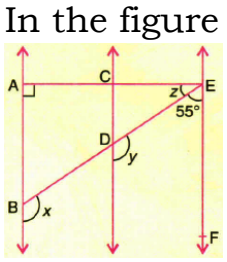
173) In figure ray OS stands on a line POQ Ray OR and ray OT angle bisectors of ∠ POS and ∠ SOQ ,respectively If ∠ POS =x find ∠ ROT



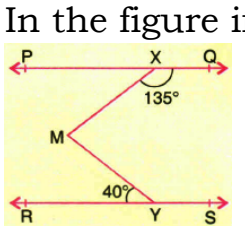
174) In Figure lines PQ and RS intersect each other at point O,if ∠ PQR : = 5:7 Find all the angles.



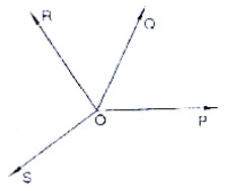
175) In the figure AB || CD and CD || EF Also $EA \perp AB$ if $\angle BEF = 55^0$ find the values of x,y and z



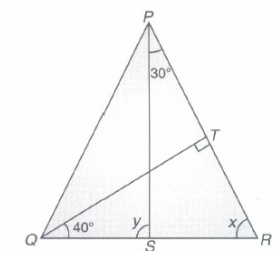
176) In the figure if PQ || RS, $\angle MXQ = 135^0$ and $\angle MYR = 40^0$ find ∠ XMY



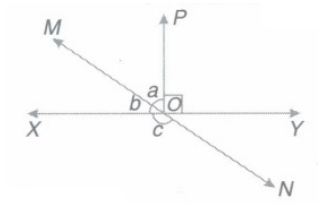
177) ln the given figure, OP, OQ,OR and OS are four rays. Prove that ∠ POQ + ∠ ROQ + ∠ SOR + ∠ POS = 360°.



178) In the given figure QT ⊥ PR, ∠TQR = 40° and ∠SPR= 30°, then find x and y.



179) In the figure, lines XY and MN intersect at O. If $\angle POY$ = 90º and a:b = 2:3, find the value of c.

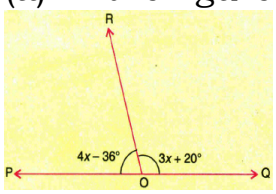


180) Two complementary angles are such that two times the measure of one to three times the measure of the other .Find the measure of the largest angle.

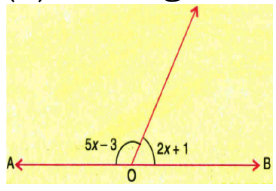
181) Find the supplement of $\frac{4}{3}$ of right angle

182) If $(3x-58^0)$ and $(x+38^0)$ are supplementary angles,find x and the angles.

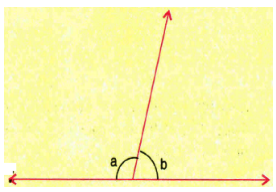
183) (a) In the figure , what value of x will make POQ a straight line:



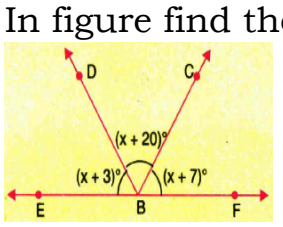
(b)In the given figure find the value of x,If AOB is a line



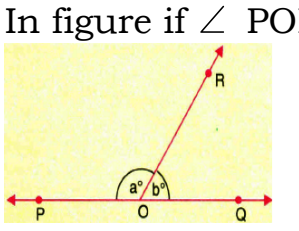
184) In the given figure a is greater than b, by $\frac{1}{6}$ th of a straight angle Find the angles of a and b.



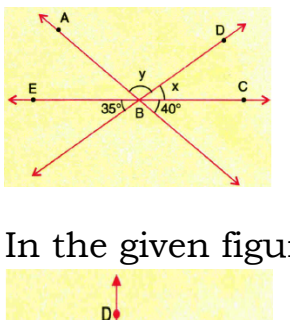
185) In figure find the value of x.



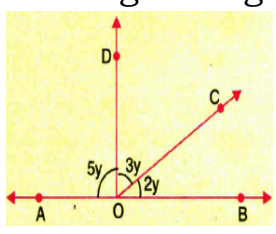
186) In figure if $\angle$ POR and $\angle$ QOR form a linear pair and $a-b=80^0$ then find the values of a and b



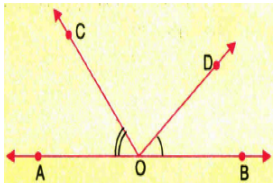
187) Find the value of x and y in the figure



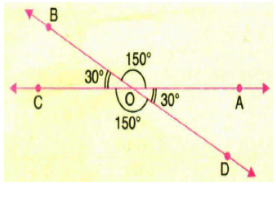
188) In the given figure if AOB is a line then find the measure of $\angle$ BOC $\angle$ COD and $\angle$ DOA



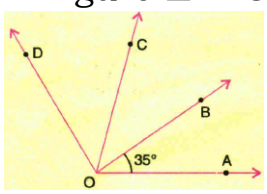
189) In figure OA ,OB are opposite rays and $\angle$ AOC +$\angle$ BOD=90^0 Find $\angle$ COD



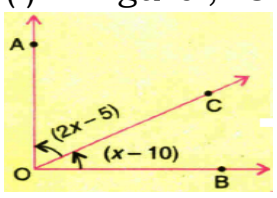
190) If OA,OB,OC and OD are the rays such that $\angle$ AOB=$\angle$ COD=150^0 $\angle$ BOC=30^0 and $\angle$ AOD=30^0 Is it true that AOC and BOD are straight lines? Justify your answer.



191) In figure $\angle$ DOB $=87^0$ and $\angle$ COA $=82^0$ If $\angle$BOA 35^0 and Find $\angle$ COB and $\angle$COD

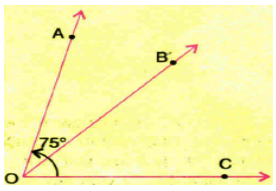


192) (i) In figure ,AO $\perp$ OB Find $\angle$AOC and $\angle$ BOC

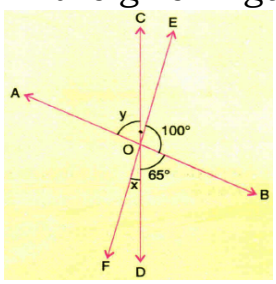


(ii) In figure,$\angle$ AOB ;$\angle$BOC=2:3

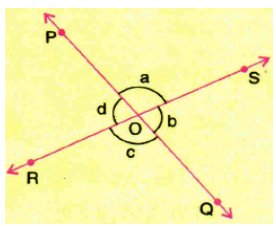
If $\angle$AOC=75^0 then find the measure of ,$\angle$ AOB ;$\angle$BOC



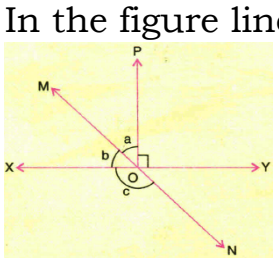
193) In the given figure lines AB,CD, and EF intersect at O Find x and y



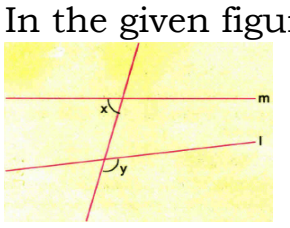
194) Lines PQ and Rs Intersect each other at O (see figure) If $\angle$POR;$\angle$ROQ=3:7 Find all the angles a,b,c and d.



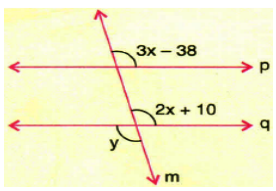
195) In the figure lines XY and MN Intersect at O if POY = 90^0 and a:b =3 find the value of c



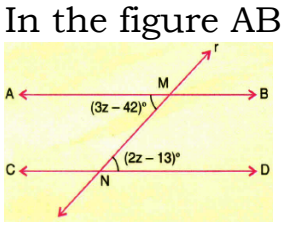
196) In the given figure x=70^0 y=120^0 Check whether l || m? Give reason



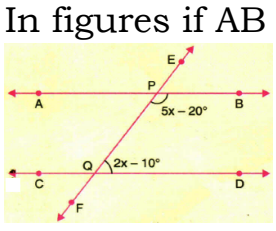
197) What is the value of y, if p and q are parallel to each other?



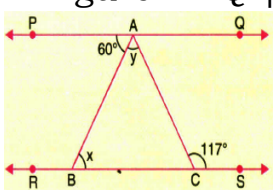
198) In the figure AB || CD ,find the value of z,$\angle DNM$ and $\angle CNM$



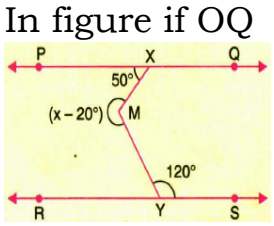
199) In figures if AB || CD then find the value of x



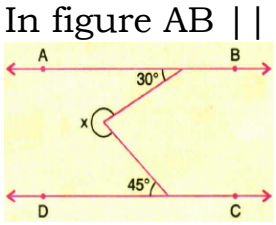
200) In figure if PQ || RS $\angle$ PAB=60^0 and $\angle ACS = 117^0$ then find (x-y)



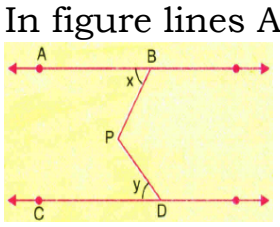
201) In figure if OQ || RS and $\angle PXM = 50^0$ and $\angle MYS$ =120^0 Find the value of x.



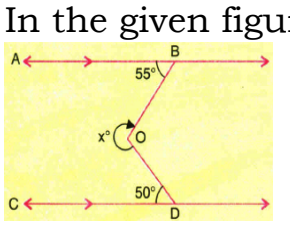
202) In figure AB || CD Determine x.



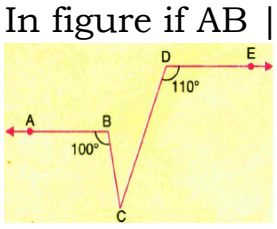
203) In figure lines AB and CD are parallel and P is any point between the two lines Prove that $\angle$ DPB=X+Y



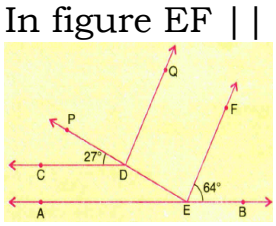
204) In the given figure find x,if AB || CD



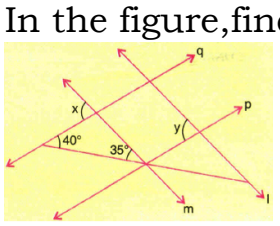
205) In figure if AB || DE then find the maesure of $\angle$ BCD



206) In figure EF || DQ and AB || CD Find $\angle PDQ, \angle AED$ and $\angle DEF$

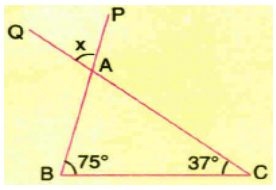


207) In the figure,find x and y if l || m,p|| q

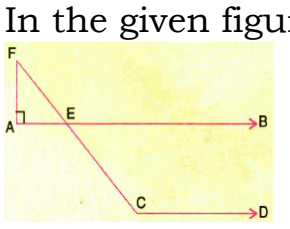


208) An exterior angle of a triangle is 115^0 and one of the interior opposite angles is 35^0 .Find the other two angles of the triangle.

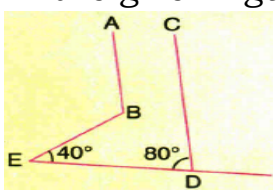
209) Find the value of x in the given figure



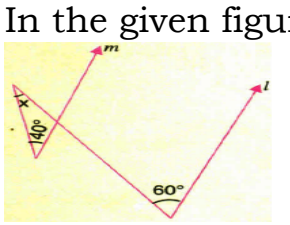
210) In the given figure AB || CD , $\angle$ FAE=90^0 , $\angle$ AFE=40^0 find $\angle$ ECD



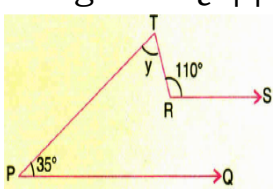
211) In the given figure AB || CD if $\angle$ CDE = 80^0 and $\angle$ BED = 40^0 find $\angle$ ABE



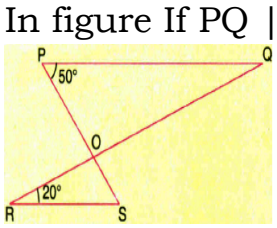
212) In the given figure if l || m then find the value of x.



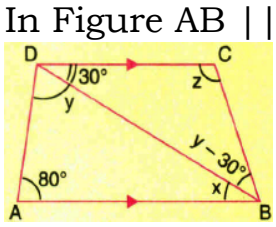
213) In figure PQ || RS find the value of y.



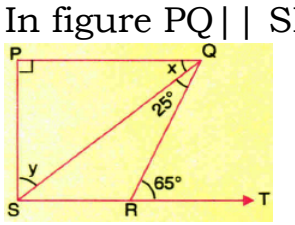
214) In figure If PQ || RS then find $\angle$ SOR



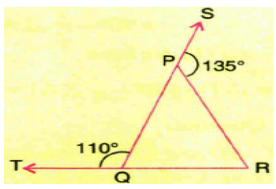
215) In Figure AB || DC , $\angle$ BDC = 30^0 and $\angle$ BAD=80^0 ,find $\angle$x,$\angle$y and $\angle$z



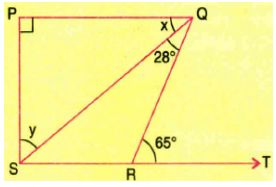
216) In figure PQ|| SR $\angle$ SQR=25^0 $\angle$QRT=65^0 find x and y:



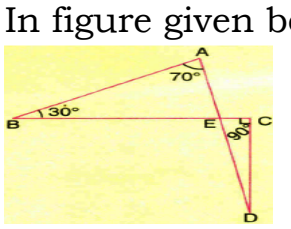
217) In the figure sides QP and RQ of PQR produced to points S and T respectively. If $\angle$ SPR=135^0 AND PQT = 110^0 find $\angle$ PRQ



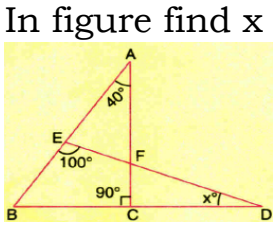
218) In the given figure if $PQ \perp PS, PQ||SR, \angle SQR = 28^0$ and $\angle QRT = 65^0$. Find the values of X and y.



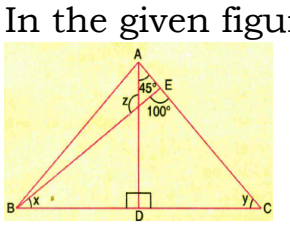
219) In figure given below find the value of $\angle$ CDE



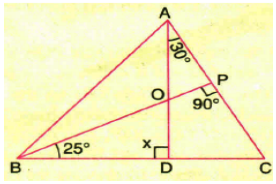
220) In figure find x



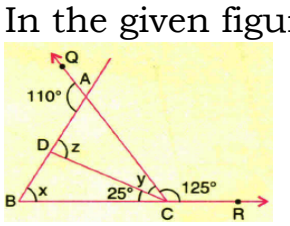
221) In the given figure AD $\perp$ BC,$\angle$ BEC=100^0 $\angle$ DAC=45^0 Find the values of x,y and z



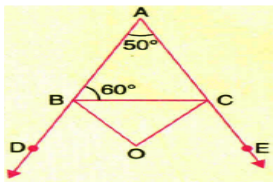
222) In figure BP $\perp$ AC $\angle$ PBC=25^0 and $\angle DAC = 30^0$ find the value of x



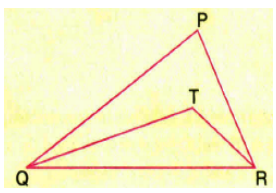
223) In the given figure if $\angle$ BCD=25^0 ,$\angle BAQ = 110^0$ and $\angle$ ACR =125^0 find the values of x,y,z



224) In figure, BO and CO are the bisectors of $\angle DBC$ and $\angle ECB$ respectively if $\angle BAC = 50^0$ then find a measure of $\angle$ BOC

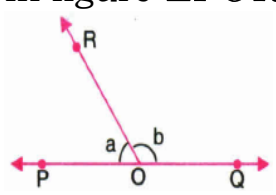


225) In figure TQ, TR are the bisectors of $\angle 0$ and $\angle R$ respectively if $\angle QPR = 80^0$ and $\angle PRT = 30^0$ determine $\angle PRT = 30^0$ determine $\angle TOR$ and $\angle QTR$

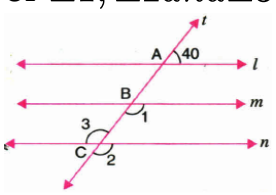


226) An angle is equal to five times its supplement. Find the measure of the angle

227) In figure $\angle POR$ and $\angle QOR$ form a linear pair. If b-a=60^0 find the values of a and b.



228) l,m and n are parallel lines intersected by transversal 't' at A, B, and C respectively. Find the measure of $\angle 1, \angle 2 and \angle 3$ Give reasons

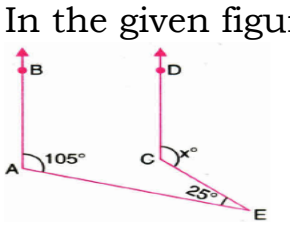


229) In $\triangle$ ABC if $\angle A = (2Xx - 5)^0, \angle B = (5X + 5)^0$ $\angle C = (3Xx - 50)^0$ then find the values of x, $\angle$ A ,$\angle B$ and $\angle C$.

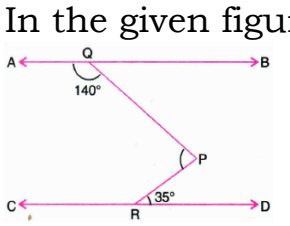
230) find the angles of a triangle PQR if $\angle p - \angle q = 45^0$ and $\angle Q - \angle R = 30^0$

231) Let OA,AB, OC and OD by the rays in the anticlockwise direction starting from OA, such that $\angle AOB = \angle COD = 100^0; \angle AOD = \angle BOC = 80^0$ Is it true that AOC and BOD are straight lines? Justify your answer by drawing the figures.

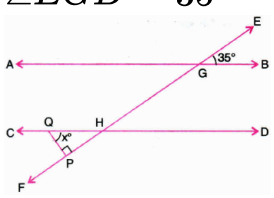
232) In the given figure AB || C Find the value of x.



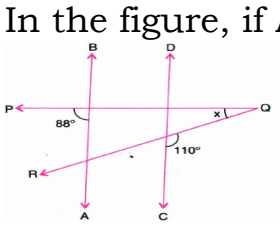
233) In the given figure ,AB || CD ,$\angle AQP = 140^0$ $\angle PRD = 35^0$ Find $\angle QPR$ and reflex $\angle QPR$



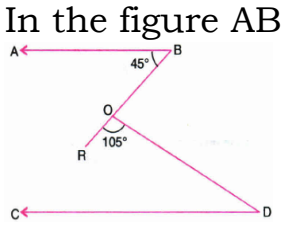
234) In the given figure AB ||CD and EF is transversal cutting them at G and H respectively.If $\angle EGB = 35^0$ and QP $\perp$ then find $\angle PQH$



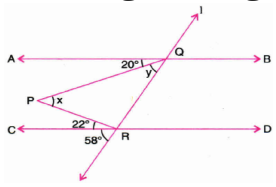
235) In the figure, if AB || CD then find a measure of x



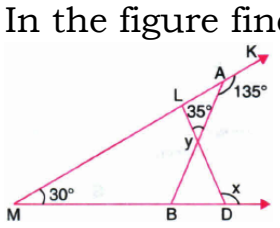
236) In the figure AB || CD if $\angle ABR = 45^0$ and $\angle ROD = 105^0$ then find $\angle$ ODC



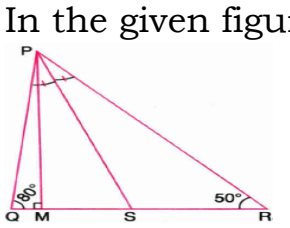
237) In the given figure find the value of x and y if AB || CD



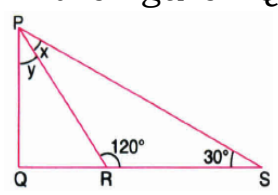
238) In the figure find 'x'



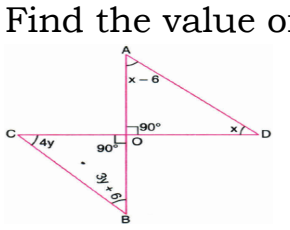
239) In the given figure $\angle QPR \quad PM \perp QR \quad find \quad \angle MPS$



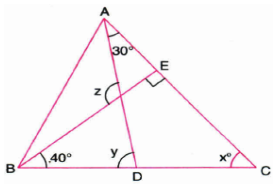
240) In the figure PQ $\perp$ S find 'x' and 'y' where $\angle PRS = 120^0 \quad and \quad \angle PSR \quad = 30^0$



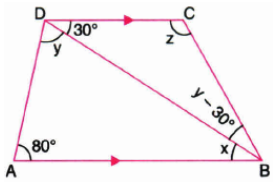
241) Find the value of x and y in the figure below



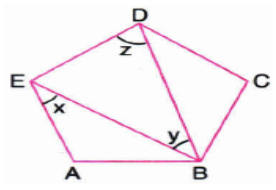
242) In the ABC BE $\perp$ AC,$\angle$, EBC =40^0 and $\angle DAC = 30^0$ Find the values of x,y,z



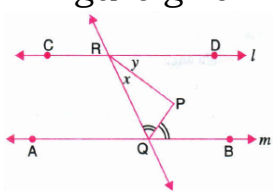
243) In figure if AB || DC $\angle BDC = 30^0$ and $\angle BAD = 80^0$ find $\angle x, \angle y \, and \angle z$



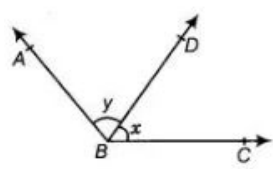
244) ABCDE is a regular pentagon as shown in the given figure Find the values $\angle x \angle y \angle z$



245) In figure given below l || m Before of RQB and DRQ intersect at P find the measure of RPQ



246) For what value of x + y in the given figure will ABC be a line? Justify your answer.



247) If one angle is equal to four times of its complement. Find the angle.

248) Find the measure of an angle which is 36° more than its complementary.

249) Find the measure of an angle which is 25° less than its supplement.

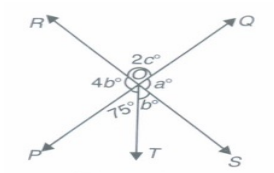
250) If two supplementary angles are in the ratio of 11 : 7, then find the angles.

251) The supplement of an angle is one-fifth of itself. Determine the angle and its supplement.

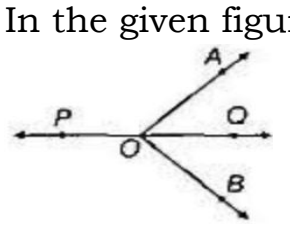
252) If complement of an angle is one third of its supplement. Find the angle.

253) If OA, OB, OC and OD are rays in the anti-clockwise direction such that ∠AOB = ∠COD = 100°, ∠BOC = 82° and ∠AOD = 78°. Is it true to say that AOC and BOD are lines?

254) In the given figure, two straight lines PQ and RS intersect each other at O. If ∠POT = 75°, then find the values of a, b and c



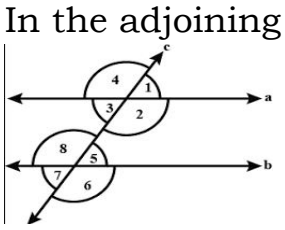
255) In the given figure, OQ bisects ∠AOB. If OP is a ray opposite to ray OQ, then prove that ∠POA = ∠POB.



256) Prove that the sum of all the angles on the same side of a line at a given point is 180°

257) A transversal I intersects two lines m and n such that a pair of alternate interior angles is equal. Then, what can you say about the lines m and n?

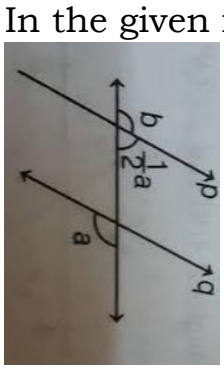
258) In the adjoining figure, what type of pair ∠2 and ∠8, is called?



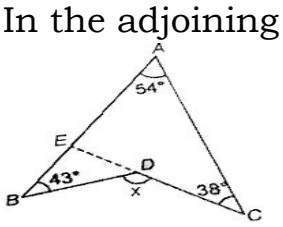
259) In the adjoining figure, if two parallel lines AB and CD are cut by a transversal EF at G and Hand ∠1 and ∠2 are in the ratio of 3 : 2, then find ∠5 and ∠6.

260) In the given figure, m || nand ∠1 and ∠2 are in the ratio 4 : 5. Determine all the angles.

261) In the given figure, if p || q, what is the value of b?

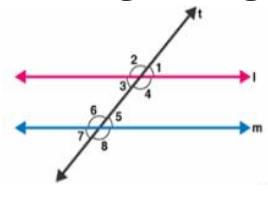


262) In the adjoining figure, find the sum of a. c and e.

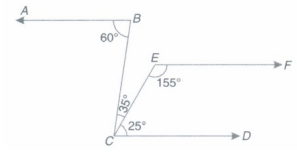


263) In the adjoining figure, transversal lintersects two lines m and n, such that $\angle 4 = 110°$ and $\angle 7 = 65°$. Is m || n? Give reason.

264) In the given figure l || m and n is a transversal such that $\angle 3 : \angle 8 = 1 : 2$. Find $\angle 4$and $\angle 3$.

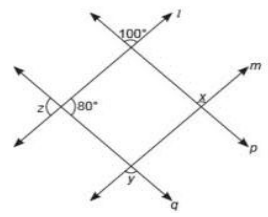


265) In the given figure, show that AB || EF.



266) In the given figure, if m II n, then find the value

267) In the given figure, find the value of x and y if l ll m and p ll q.



268) How many triangles can be drawn having its angles as 60°, 73° and 40°? Give reason for your answer.

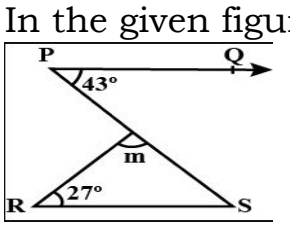
269) If the angles of a triangle are in the ratio 1 : 2 : 3. then find the angles.

270) In ΔABC, if $\angle A : \angle B : \angle C = 2 : 4 : 4$, then find the measures of $\angle A$, $\angle B$ and $\angle C$.

271) Angles of a triangle are in the ratio 2 : 4: 3. Find the smallest angle of the triangle.

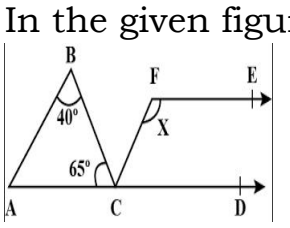
272) The angles of a triangle are in the ratio 2 : 3 : 4. Then, find the angles of the triangle.

273) In the given figure, if PQ || RS. then find the value of m.



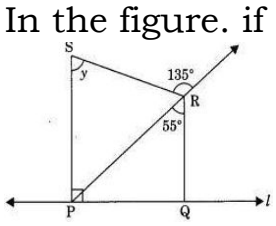
274) One of the angle of a triangle is 65°. If the difference of the remaining angles is 35°. then find remaining angles.

275) In the given figure. if AB || CD and DE || CF, then find the value of x.



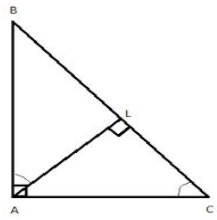
276) If one of the angles of a triangle is 130°, then find the angle between the bisectors of the other two angles.

277) In the figure. if PS ⊥ l and RQ ⊥ l. then find the measure of y.

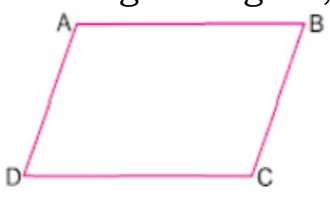


278) Prove that the sum of the angles of a quadrilateral is 4 right angles.

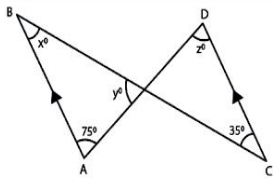
279) ΔABCis a right angled triangle, in which ∠A is a right angle. AL is drawn perpendicular to BC. If ∠BAL = 35°. then find ∠ACB.



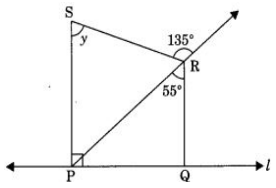
280) In the given figure, AB II DC and AD II BC. Prove that ∠DAB = ∠DCB.



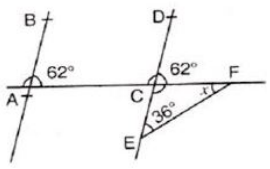
281) In the given figure, AB || CD. Determine the values of x, y and z.



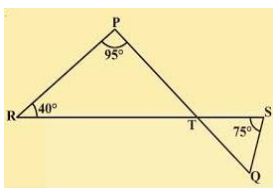
282) In the given figure, PS⊥ I and RQ ⊥ I, find the measure of ∠Y.



283) In the given figure, if AB || ED, then find the value of x.



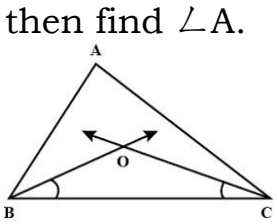
284) In the given figure, line segments PQ and RS intersect each other at a point T, such that ∠PRT = 40°, ∠RPT = 95° and ∠TSQ = 75°. Find ∠SQT.



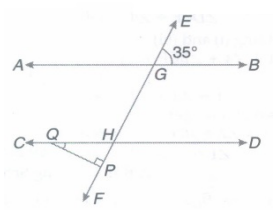
285) If the angles of a triangle are in the ratio 5 : 3 : 7, then show that the triangle is an acute angled triangle.

286) In the given figure, the bisectors of ∠ABC and ∠BCA. Intersect each other at point O. If ∠BOC = 100°, then find ∠A.

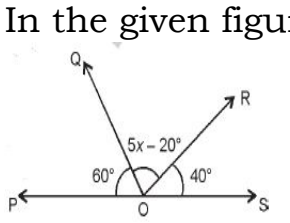
A



287) In the given figure, AB || CD and EF is a transversal, which intersects them at G and H, respectively. If ∠EGB = 35° and QP ⊥ EF, then find ∠PQH.

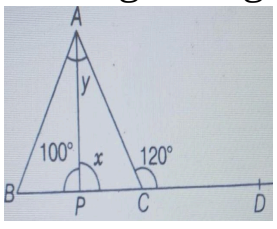


288) In the given figure, if AOB is a straight line, then find ∠AOC, ∠BOD and ∠BOC.

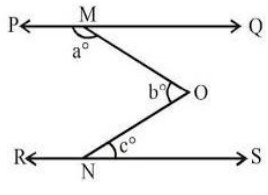


289) An exterior angle of a triangle is 120° and one of its interior opposite angles is 40°. Then, find the other two angles of the triangle.

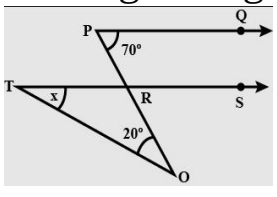
290) In the given figure, if ∠ACD = 120° and ∠APB = 100°, then find the values of x and y.



291) In the given figure, if PQ || RS, then find the relationship between a, b and c.



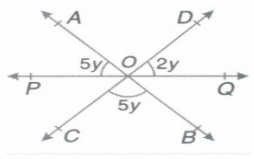
292) In the given figure, PQ || RS. If ∠QPR = 70 ° and ∠ROT = 20°, then find the value of x.



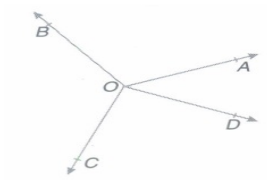
293) If (3x-15^o) and (x+5^o) are complementary angles, find the angles.

294) Two supplementary angles are in the ratio 2:3, find the angles.

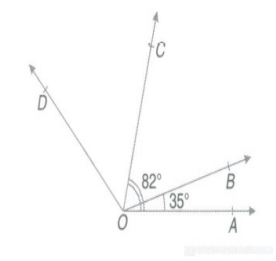
295) If $\angle AOP = 5y, \angle QOD = 2y$ and $\angle BOC = 5y$ in the given figure, find the value of y.



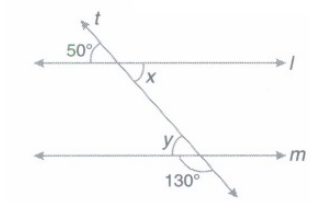
296) In figure prove that $\angle AOC + \angle BOC + \angle COD + \angle DOA = 360^o$



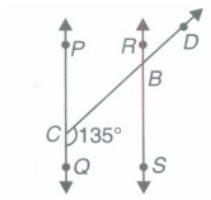
297) In figure, $\angle DOB = 87^o$ and $\angle COA = 82^o$. If $\angle BOA = 35^o$, then find $\angle COB$ and $\angle COD$



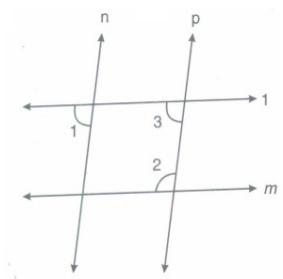
298) In the given figure, find x and y and then show that l||m.



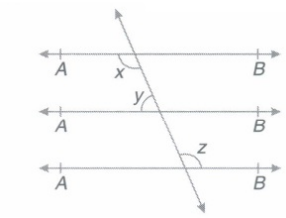
299) In the figure PQ||RS, CBD is a transverse and $\angle BCQ = 135$. Find $\angle RBD$



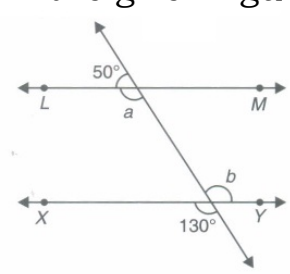
300) In the figure, l||m and n||p. If $\angle 1 = 60^o$, then prove that $\angle 2 = 2\angle 1$.



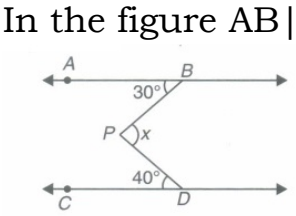
301) In figure if AB||CD||EF and x:y=3:2. Find z



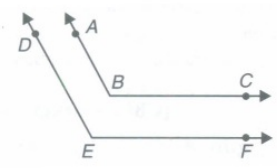
302) In the given figure, find the angles a and b then show that LM||XY



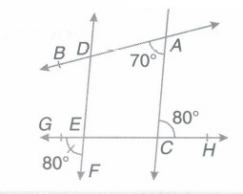
303) In the figure AB||CD, $\angle ABP = 30^o$ and $\angle CDP = 40^o$, find x



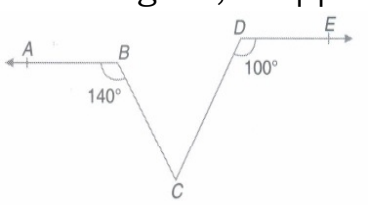
304) In given figure BA||ED and BC||EF. Show that $\angle ABC = \angle DEF$.



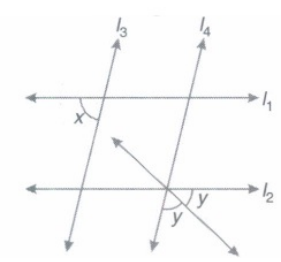
305) In the given figure, state which lines are parallel and why?



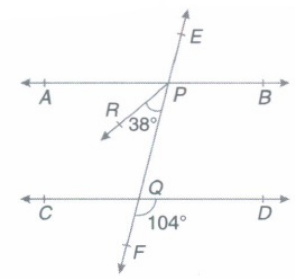
306) In the figure, AB||DE, $\angle ABC = 140^o$ and $\angle CDE = 100^o$. Find $\angle BCD$.



307) In the given figure, if $l_1 || l_2$ and $l_3 || l_4$, What is y in terms of x?

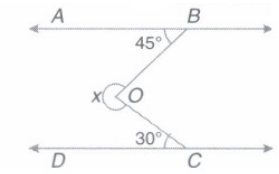


308) In the figure PR is the angle bisector of $\angle APQ$. Prove that AB||CD.



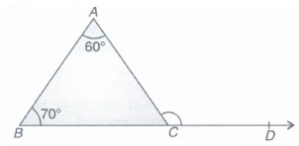
309) If a transversal intersects two parallel lines, then the bisectors of any pair of alternate angles are parallel. prove it.

310) In the figure, AB||DC. Determine x.



311) An exterior angle of a triangle is 110^o and one of the interior opposite angles is 30^o. Find the measure of another two angles of the triangle.

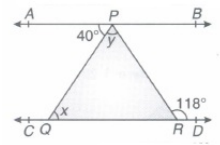
312) In the given figure, if $\angle A = 60^o$ and $\angle B = 70^o$, then find $\angle ACD$



313) In $\triangle ABC$, $\angle A + \angle B = 65^o$ and $\angle B + \angle C = 140^o$ Find the value of $\angle B$ *and* $\angle C$

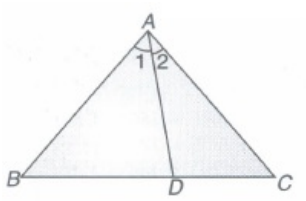
314) In $\triangle ABC, if\ \angle A = (2x - 5^o), \angle B = (5x + 5^o), \angle C = (3x + 50^o)$, then find the value of x, $\angle A, \angle B$ *and* $\angle C$.

315) In figure, if AB||CD, $\angle APQ = 40^o$ and $\angle PRD = 118^o$, find x and y

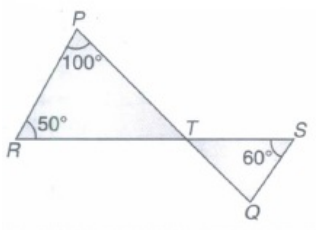


316) Prove that if one angle of a triangle is equal to the sum of the other two angles, then the triangle is right angled triangle.

317) In $\triangle ABC, \angle B = 45^o, \angle C = 55^o$, AD bisects $\angle A$. Find $\angle ADB$ and $\angle ADC$

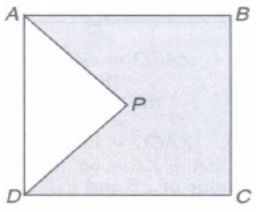


318) In figure, if lines PQ and RS intersect at point T, such that $\angle PRT = 50^o, \angle TSQ = 60^o\ and\ \angle RPT = 100^o, Find \angle SQT.$

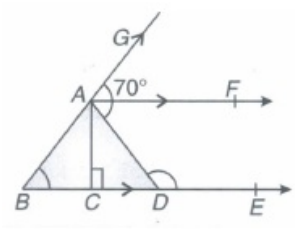


319) Prove that if in a triangle, its sides are produced in order, then the sum of the exterior angles so formed is 360°.

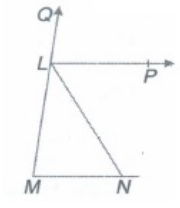
320) In the given figure, AP and DP are bisectors of $\angle A$ and $\angle D$. Prove that $2\angle APD = \angle B + \angle C$



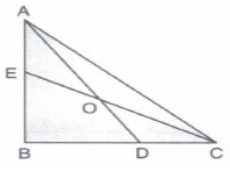
321) In the given figure, AF||BE, $AC \perp BE$ and AF bisects $\angle GAD$. If $\angle GAD = 70^o$, then find the measure of $\angle ABC$ *and* $\angle ADE$



322) In the given figure, $\triangle LMN$ is an isosceles triangle with $\angle M = \angle N$ and LP bisects $\angle NLQ$. Prove that LP||MN.

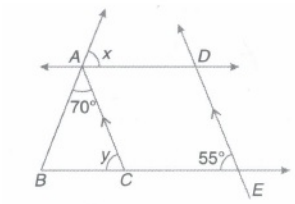


323) In the given figure, AD and CE are the bisectors of $\angle A$ and $\angle C$ respectively. If $\angle ABC = 90^o$, find $\angle ADC + \angle AEC$

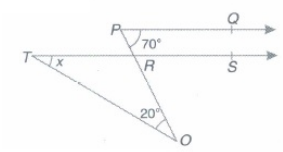


324) The angles of a triangles are (x-40), (x-20)° and $(\frac{x}{2} - 10)^o$, Find the value of x and then the angles of the triangle.

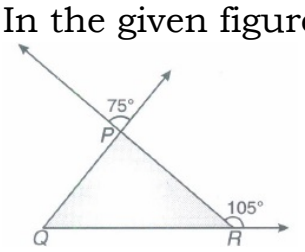
325) In the given figure, AC||DE and AD||CE, find x and y, when it is given that $\angle BAC = 70^o$ and $\angle DEC = 55^o$



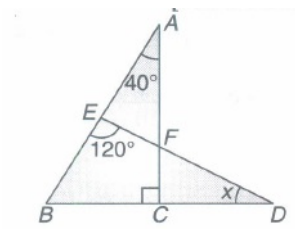
326) In fig, PQ||RS, $\angle QPR = 70^o, \angle ROT = 20^o,$ find the value of x.



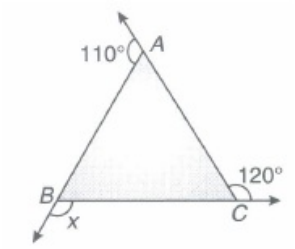
327) In the given figure, calculate the value of $\angle PQR$



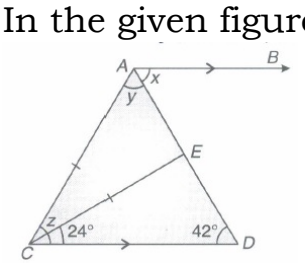
328) Find the value of x in the given figure, where $\angle A = 40^o$ and $\angle BED = 120^o$



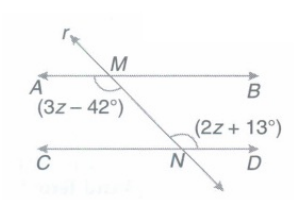
329) In the figure below, what will be the value of x?



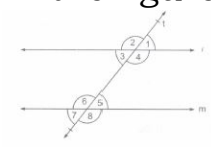
330) In the given figure, AB||CD, $\angle ECD = 24^o, \angle EDC = 42^o.$ and AC=CE. Find x and y.



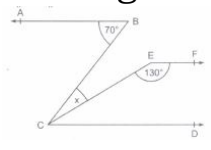
331) In the figure, AB||CD, find the value if z, $\angle DNM$ and $\angle CNM$.



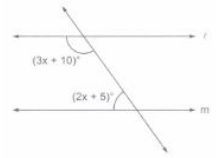
332) In the figure, l ∥ m and t is a transversal. If ∠1 = 57°, then find all other angles.



333) In the given figure, AB ∥ CD ∥ EF. Find the value of x.

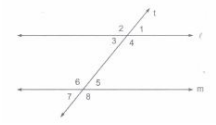


334) For what value of x will the lines l and m be parallel to each other?



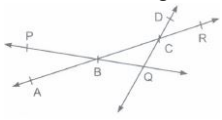
Hint: l and m will be parallel if the interior opposite angles are supplementary.

335) In the figure, l‖ m and t is a transversal. If ∠1 : ∠2 = 3 : 7, then find the degree measures of all angles.



336) If P, Q and R are three collinear points, then name all the line segments determined by them.

337) In the adjoining figure, identify at least four collinear points.

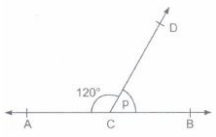


338) Find the complement of 36°.

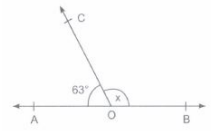
339) Find the supplement of 105°.

340) Angles ∠P and 100° form a linear pair. What is the measure of ∠P?

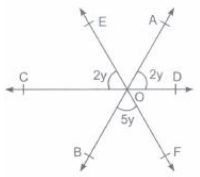
341) In the adjoining figure, what is the measure of p?



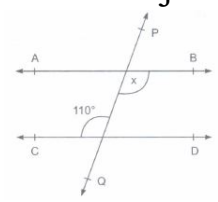
342) In the adjoining figure, AOB is a straight line. Find the value of x.



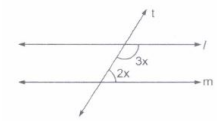
343) In the given figure, AB, CD and EF are three lines concurrent at O. Find the value of y.



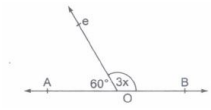
344) In the adjoining figure, AB ‖ CD and PQ is transversal. Find x.



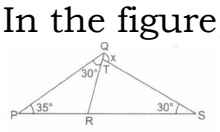
345) If l ‖ m and t is a transversal such that the two interior opposite angles are $2x^o$ and $3x^o$. What is the value of x?



346) In the figure, what is the value of x?



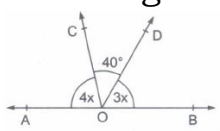
347) In the figure, what is the value of x?



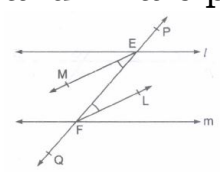
348) In a triangle two angles are equal to each other. Their corresponding exterior angle is 110°. What is the measure of these angles?

349) If x and y form a linear pair such that x - 2y = 33° then what is the value of x?

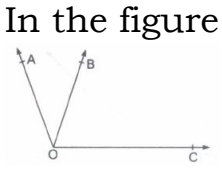
350) In the figure AOB is a straight line. What is the value of x?



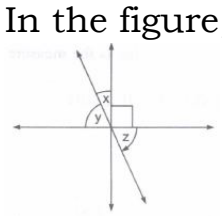
351) l || m and PQ is a transversal. If EM and FL are bisectors of a pair of alternate angles so formed then EM and FL are parallel or intersecting?



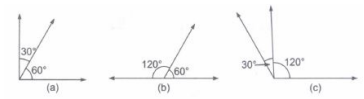
352) In the figure write a pair of adjacent angles.



353) In the figure, if x : y = 4 : 5, what is the measure of z?

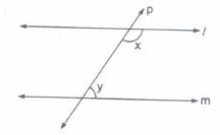


354)

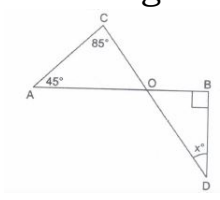


Look at the above figures. Which pair of angles form adjacent complementary angles?

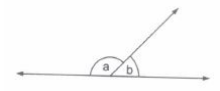
355) In the figure, l || m and p is a transversal. If x = 3x + 20 and y = 2x - 20, then what is x - y?



356) In the figure, what is the measure of x?



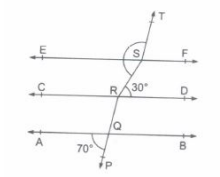
357) In the figure, if a - b = 100° then what are the measures of a and b?



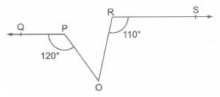
358) The angles of a triangle are in the ratio 3 : 5 : 7. What type of Δ is this?

359) If one angle of a triangle is 110° then what is the measure of the angle between the bisectors of the other two angles?

360) In the figure AB || CD || EF; PQ || ST. If ∠SRD = 30° and ∠AQP = 70° then what is the measure of ∠RST?

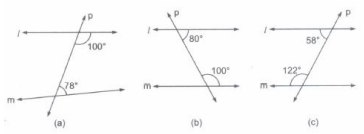


361) In the figure PQ || RS. If ∠OPQ = 120° and ∠ORS = 110°, then what is the measure of ∠POR?



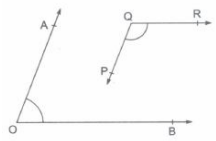
362) The angles of a triangle are in the ratio 2 : 4 : 3. then what is the measure of the smallest angle of the triangle?

363) Which of the pair of two lines l and m is not parallel?



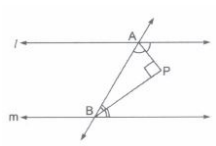
364) The angles of a triangle are in the ratio 2 : 3 : 4. What is the measure of the greatest angle?

365) In the figure OA ∥ QP and OB ∥ QR, ∠AOB + ∠PQR?

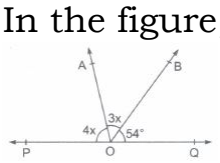


(i) 90°
(ii) 100°
(iii) 180°

366) In the figure l ∥ m and AP and BP are the bisectors of interior opposite angles. What is the measure of ∠APB?

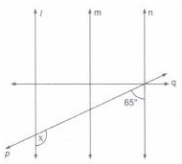


367) In the figure, POQ is a straight line. What is the value of x?



368) The difference between two complementary angles is 15°, what are the measure of the angles?

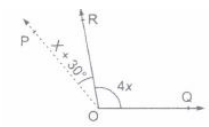
369) In the figure, lines l ∥ m and m ∥ n. If p and q are transversal then what is the measure of x?



370) The supplement of an angle is $\frac{1}{5}$ of it. Determine their difference.

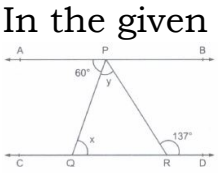
371) The complementary angles are in the ratio 1 : 5. Find their difference.

372) What value of x would make POQ a straight line?



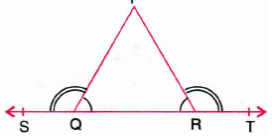
373) Let OA, OB, OC and OD be rays in anticlockwise direction starting from OA such that: ∠AOB = ∠COD = 100°, ∠BOC = 82° and ∠AOD = 78°. Is it true that AOC and BOC are straight lines? Justify your answer.

374) In the given figure, if AB ∥ CD, ∠APQ = 60° and ∠PRD = 137° then find x and y.

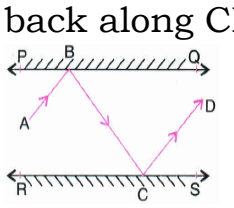


3 Marks 73 x 3 = 219

375) In figure ∠ PQR =∠ PRQ then prove that ∠ PQS =∠ PRT



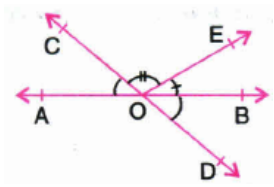
376) In Figure ,PQ and RS are two mirrors placed parallel to each other An incident ray AB strikes the mirror PQ at B the reflected ray moves along the path BC and strikes the mirror RS at C and again reflects back along CD.Prove that AB|| CD



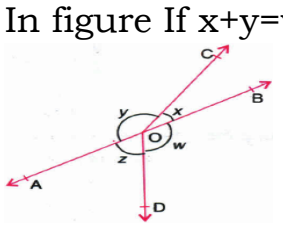
377) If a transversal intersects two lines such that the bisectos of pair of a pair of corresponding angles are parallel, then prove that the two lines are parallel.

378) If a transversal intersects two parallel lines, then each pair of alternate interior angles is equal.

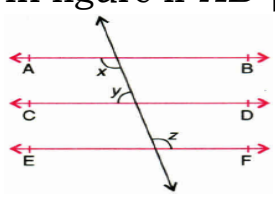
379) In figure lines AB and CD intersect at O. if $\angle BOE=70^0$ and $\angle$ BOD= 40^0 Find $\angle$BOE and reflex $\angle$ COE.



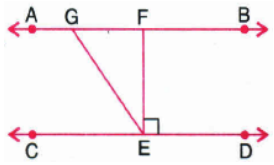
380) In figure If x+y=w+z then prove that AOB is a line



381) In figure if $AB \parallel CD \parallel, CD \parallel EF$ and y:z=3:7, find x



382) In figure if AB $\parallel$ CD .EF $\perp$ CD and $\angle$ AGE,$\angle$ GEF and $\angle$ FGE

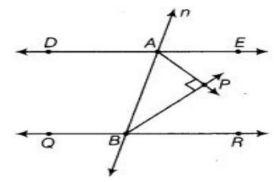


383) If two interior angles on the same side of a trans real intersecting two parallel lines are in the ratio 3 : 2, then find the greater of the two angles.

384) Prove that two lines that are respectively perpendicular to two intersecting lines intersect each other.

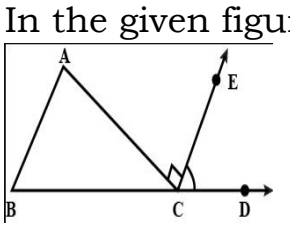
385) Prove that through a given point, we can draw only one perpendicular to a given line.

386) In the given figure, DE || QR and AP and BP are bisectors of $\angle$EAB and $\angle$RBA, respectively. Then, find $\angle$APB.

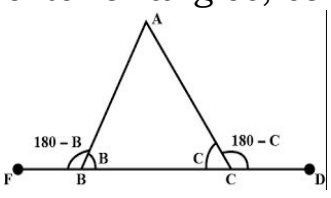


387) If two parallel lines are intersected by a transversal. then prove that the bisectors of two interior angles are parallel.

388) In the given figure, AC $\perp$ CE and $\angle$A: $\angle$B: $\angle$C = 5:3:2. Find the value of $\angle$ECD.

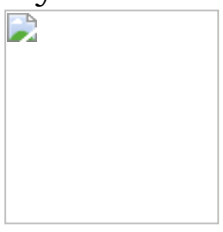


389) In the given figure, side BC of ΔABC is produced in both the directions. Prove that the sum of the two exterior angles, so formed is greater than 180°.



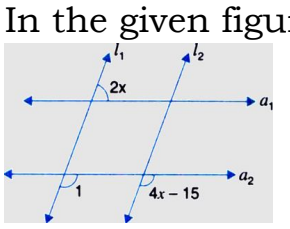
390) If two complementary angles are such that two times the measure of one is equal to three times the measure of the other. Then, find the measure of the larger angle.

391) Three lines AB, CD and EF meet at a point O, forming angles as shown in the figure. Find the values of x.y.z and u.

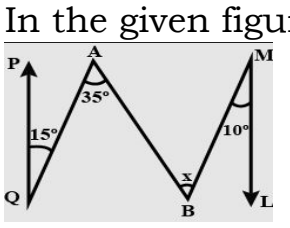


392) In the given figure, AB || CD, CD || EF, and EA ⊥ AB. If ∠BEF = 75°, then find the values of x, y and z.

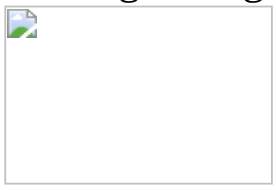
393) In the given figure, if l_1 || l_2 and a_1 || a_2,then find the value of x.



394) In the given figure, if QP || ML, then find the value of x.



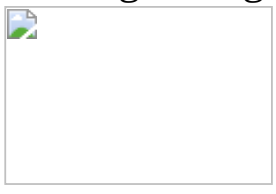
395) In the given figure, if AB || CF and CD || EF, then find the value of x.



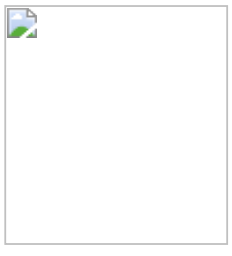
396) The angles of a triangle are (x-40°), (x-20°) and $\left(\frac{x}{2}-10^\circ\right)$ Find the value of x and then find the angles of the triangle.

397) The degree measures of three angles of a triangle are x°, y° and z°. If $z^\circ = \frac{x^\circ + y^\circ}{2}$, then find the value of z°.

398) In the given figure, if AB || DC, ∠BDC = 30° and ∠BAD = 80°, then find ∠x, ∠y and ∠z.

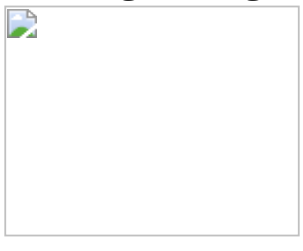


399) In the figure PQ and RS intersect each other at point O. If $\angle POR : \angle ROQ = 2:3$, Find $\angle POR$ and $\angle ROQ$



400) In the given figure, lines AB, CD and EF meet at O. Find the value of x, hence find all the three indicate anges.

401) In the given figure, $PO \perp AB$, If x:y:z=1:3:5, then find the degree measure of x,y and z.



402) In the figure, if AB||CF and CD||FE, then find the value of x.

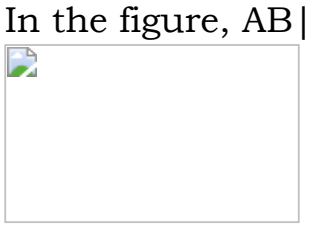
403) Prove that if two line intersect, vertically opposite angles are equal.

404) Prove that bisectors of pair of vertically opposite angles are in the same straight line.

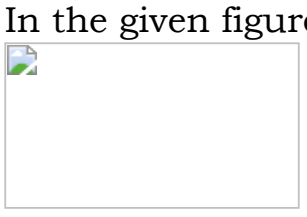
405) In the figure, if x+y=w+z, then prove that AOB is a straight line.

406) In the given figure, if AB||CD,$\angle BPQ = (5x - 20^o) and \angle PQD = (2x - 10^o)$, Find the value of y and z.

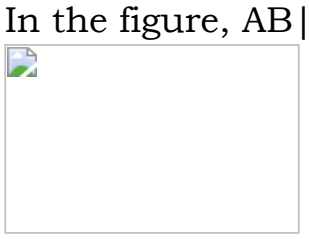
407) In the figure, AB||CD, EF||DQ. Determine $\angle PDQ, \angle AED \; and \angle DEF$.



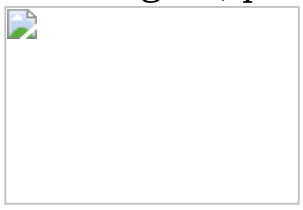
408) In the given figure, l||m||n. From the figure, find the ratio of (x+y):(y-x).



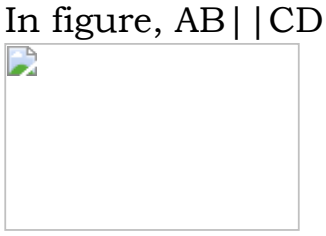
409) In the figure, AB||CD,$EF \perp CD$ and $\angle GFC = 130^o$. Find x, y and z



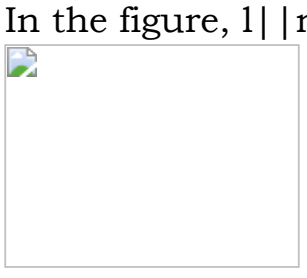
410) In the figure, prove that AB||EF



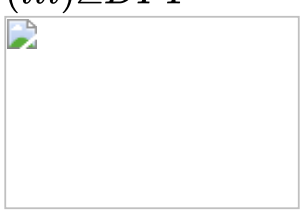
411) In figure, AB||CD, then find x.



412) In the figure, l||m. Prove that $\angle 1 + \angle 2 - \angle 3 = 180^o$

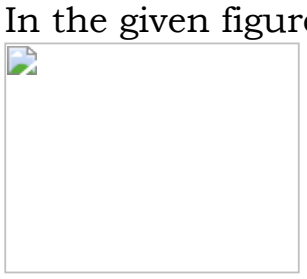


413) In the figure AB||CD and DE||PF. If $\angle APF = 50^o$ and $\angle CDG = 40^o$. Find
$(i)\angle AQD$
$(ii)\angle EDG$
$(iii)\angle DPF$



414) If two parallel lines are intersected by a transversal, prove that the bisectors of the interior angles on the same side of transversal interest each other at right angles.

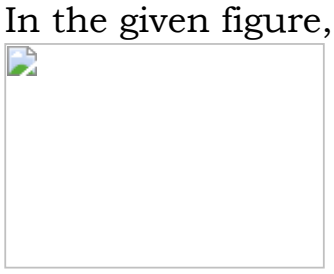
415) In the given figure, QP||ML, find the value of x.



416) If a transversal intersects two parallel lines, then prove that bisectors of alternate interior angles are in parallel.

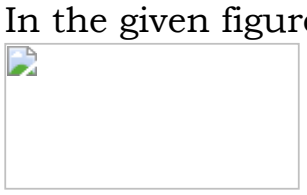
417) In figure, a transversal l cuts two lines AB and CD at E and F respectively. EG is the bisector of $\angle AEF$ and FH is the bisector of $\angle EFD$ such that $\angle a = \angle b$. Show that EG||FH and AB||CD.

418) In the given figure, find the value of x:

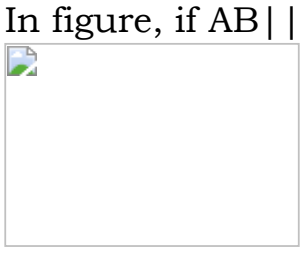


419) In $\triangle ABC$, AD and CE are the bisectors of $\angle A$ and $\angle C$ respectively. If $\angle ABC = 90^o$, then find $\angle AOC$.

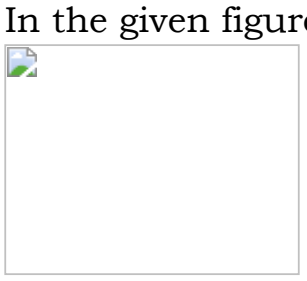
420) In the given figure, find a+b.



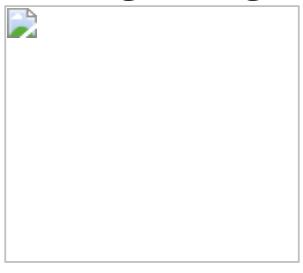
421) In figure, if AB||CD, then find the measure of x.



422) In the given figure, AB||CD, $\angle BAC = 72^o$ and $\angle CEF = 40^o$. Find $\angle CFE$.

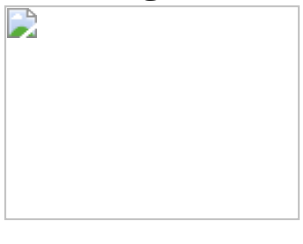


423) In the given figure $DE \perp AB$. Find the value of x and y.

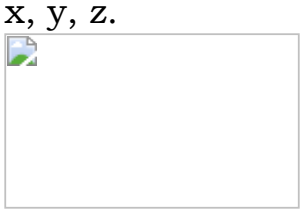


424) In figure, triangle ABC is right angles at A, AL is drawn perpendicular ro BC. Prove that $\angle BAL = \angle ACB$.

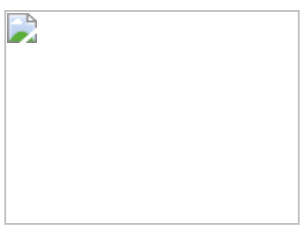
425) In the figure, $\angle BAC = 50^o, \angle GBD = 70^o$ and l and m are parallel lines. Find x,y, and z.



426) In the given figure, if $\angle BCD = 25^0, \angle BAQ = 110^o \; and \; \angle ACR = 125^o$, then find the values of x, y, z.

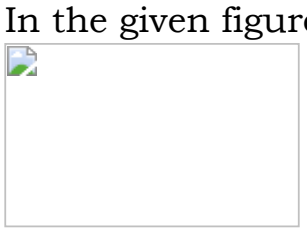


427)



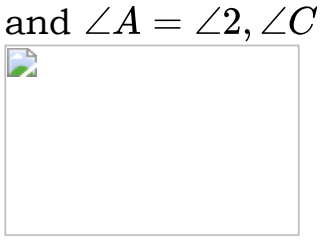
In figure, $PQ \perp PR, QP || RL, \angle RQT = 38^o$ and $\angle QTL = 75^o$. Find x and y.

428) In the given figure, $\angle CAB : \angle BAD = 1 : 2,$ find all the internal angles of $\triangle ABC$.

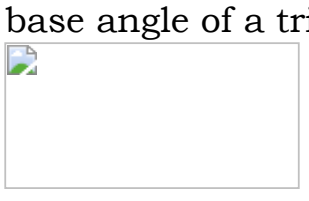


429) In the given figure, BO and CO are bisectors of $\angle DBC$ and $\angle ECB$ respectively. If $\angle BAC = 70^o$ and $\angle ABC = 40^o$, find the measure of $\angle BOC$

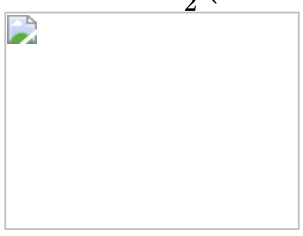
430) In the given figure $\angle 3$ and $\angle 4$ are exterior angles of quadrilateral ABCD at point D and B respectively. and $\angle A = \angle 2, \angle C = \angle 1.$ Prove that $\angle 3 + \angle 4 = \angle 1 + \angle 2$



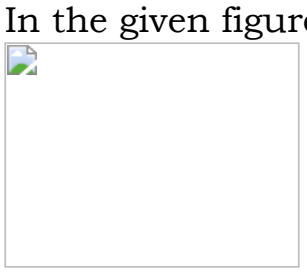
431) Prove that the angle between internal bisector of one base angle and the external bisector of the other base angle of a triangle is equal to one-half of the vertical angle.



432) In the figure of $\triangle ABC, AE$ is the bisector of $\angle BAC$ and $AD \perp BC$. Show that $\angle DAE = \frac{1}{2}(\angle C - \angle B)$



433) In the given figure, find the value of x°



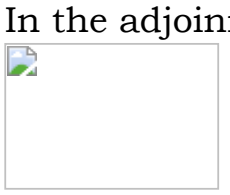
434) Prove that the sum of angles of a triangle is 180°

435) Find the measure of an angle which is 26° more than its complement.

436) Find the measure of an angle if four times its complement is 10° less than twice its complement.

437) In the adjoining figure, AOB is a straight line. Find the value of x.

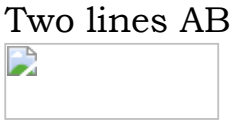
438) In the adjoining figure, find ∠AOC and ∠BOD.



439) In the adjoining figure, AB ∥ CD. Find the value of x.

440) If a ray CD stands on a line AB, then prove that ∠ACD + ∠BCD = 180°.

441) Two lines AB and CD intersect at a point O. Prove that: ∠AOD = ∠BOC.



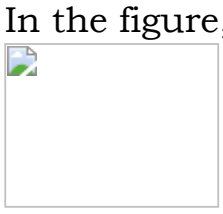
442) In the following figure. AOB is a straight line. Find ∠AOC and ∠BOD.

443) In the following figure, p : q : r = 2 : 3 : 4. If AOB is a straight line, then find the values of p, q and r.

444) In the figure, AB ∥ CD. GE and HF are the bisectors of ∠AEF and ∠EFD respectively. Show that GE ∥ FH.

445) If two parallel lines are intersected by a transversal, then show that the bisectors of a pair of alternate interior angles are parallel.

446) In the figure, AB ∥ CD. EG and FH are bisectors of ∠PEB and ∠EFD respectively. Show that EG∥ FH.



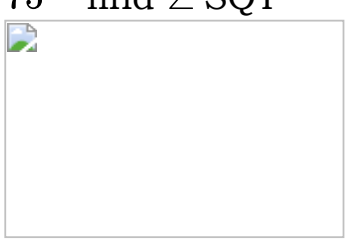
447) If two parallel lines are intersected by a transversal then prove that the bisectors of any pair of corresponding angles are parallel.

4 Marks 67 x 4 = 268

448) If two lines intersect each other, then the vertically opposite angles are equal. prove it

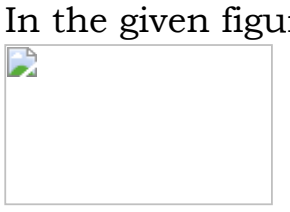
449) In figure sides QP and RQ of PQR are produced to points S and T respectively if $\angle SPR = 135^0$ and $\angle PQT = 110^0$ find $\angle$ PRQ

450) In figure if lines PQ and RS intersect at point T, such that $\angle$ PRT=40^0 $\angle$ RPT=95^0 and $\angle$ TSQ= 75^0 find $\angle$ SQT



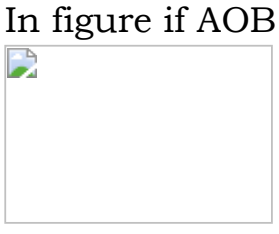
451) In ΔABC, the sides AB and AC of ΔABC are produced to points E and D, respectively. If bisectors BO and CO of $\angle$CBE and $\angle$BCD, respectively meet at point O, then prove that $\angle$BOC = 90° -$\frac{1}{2}$ $\angle$BAC.

452) In the given figure PO $\perp$ AB If x:y:z=1:3:5 then find the degree measure of x,y and z

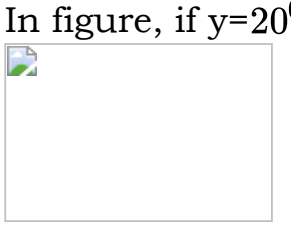


453) Ray OE bisects $\angle$ AOB and OF the ray opposite to OE Show that $\angle$ FOB=$\angle$ FOA

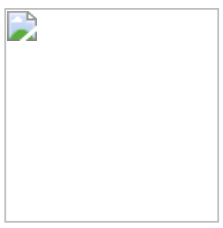
454) In figure if AOB is a line OP bisects $\angle$ BOC and OQ $\angle$ AOC ,show that $\angle$ POQ is a right angle



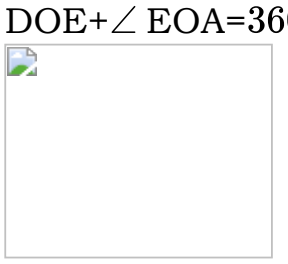
455) In figure, if y=20^0 , prove that the line AOB is a straight line.



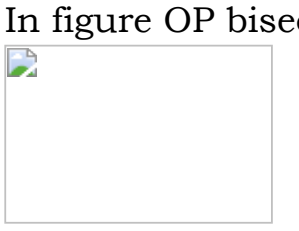
456) In the given figure , two straight lines PQ and RS intersect each other at O If $\angle$ POT =75^0 Find the values of a,b,c



457) Rays OA,OB, OC,OD, and OE have the common initial point O Show the $\angle$AOB+$\angle$ BOC+$\angle$ COD+$\angle$ DOE+$\angle$ EOA=360^0 .Draw a ray OP opposite to ray OA.



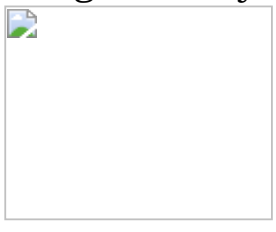
458) In figure OP bisects $\angle$ AOC,OQ bisects $\angle$ BOC and OP $\perp$ OQ Show that points A O and B are collinear.



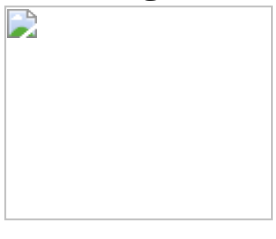
459) If two lines are perpendicular to the same line prove that they are parallel to each other.

460) If l,m,n are three lines such that l || m and n $\perp$ l , then prove that n $\perp$ m

461) In figure if x=y and a=b prove that r || n

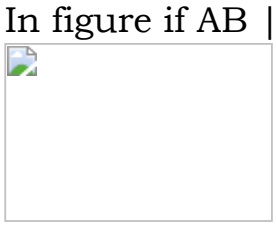


462) In the figure below $l_1 || l_2$ and $a_1 || a_2$ find the value of x.

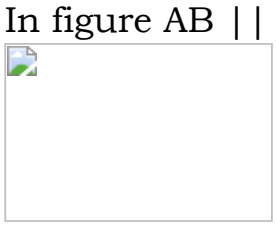


463) In the given figure m||n and p || q if $\angle$ 1=75^0 then prove that $\angle$ 2=$\angle$ 1 + $\frac{1}{3}$ of right angle

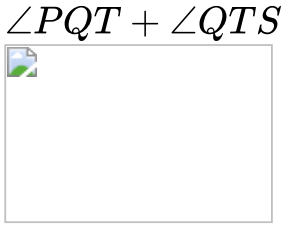
464) In figure if AB || CD then find the value of y.



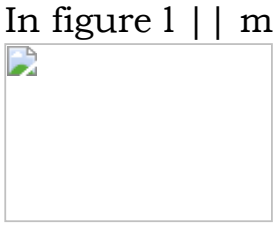
465) In figure AB || CD and CD || EF Also EA $\perp$ AB if $\angle BEF = 40^0$, then find x,y,z



466) In figure PQ || RS and T is any point as shown in the figure then show that $\angle PQT + \angle QTS + \angle RST = 360^0$

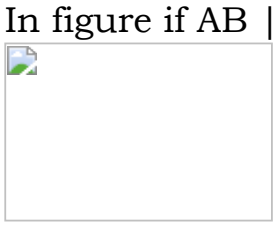


467) In figure l || m , show that $\angle 1 + \angle 2 - \angle 3 = 180^0$



468) In figure EF is a transversal to two parallel lines AB and CD ,GM and HL are the bisectors of the corresponding angles EGB and EHD prove that GM || HL. First prove that $\angle EGM = \angle GHL$

469) In figure if AB || DE,$\angle BAC = 35^0$ and $\angle$ DCE

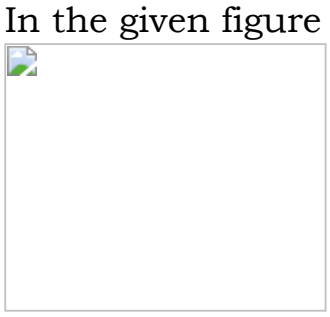


470) Prove that if one triangle is equal to the sum of the other two angles the triangle is right angled.

471) The degree measures of three angles of a triangle are x,y and z if $z = \frac{x+y}{2}$ then find the value of z

472) Prove that the sum of of all the angles of a quadrllateral is 360^0

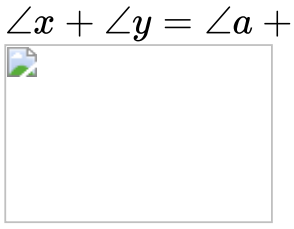
473) In the given figure find a+b



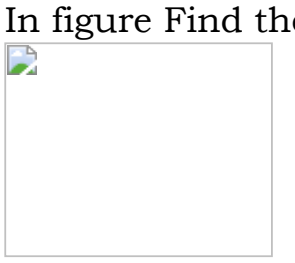
474) "If a side of a triangle is produced then the exterior angle so formed is equal to the sum of the interior opposite angles." prove it.

475) In the given figure side BC of $\triangle ABC$ is produced in both the directions Prove that the sum of the two exterior angles so formed is greater than 180^0

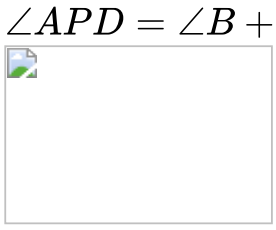
476) The sides BA and DC of a quadrilateral ABCD are produced as shown in figure Show that $\angle x + \angle y = \angle a + \angle b$



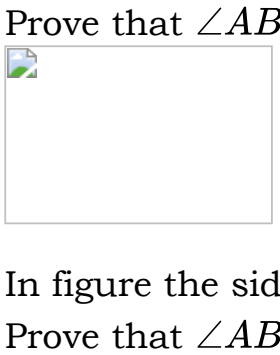
477) In figure Find the value of x



478) In figure AP and DP are bisectors of two adjacent angles A and D of a quadrilateral ABCD Prove that 2 $\angle APD = \angle B + \angle C$



479) In figure the side BC of a $\triangle$ ABC is produced to D The bisector of $\angle BAC$ is produced to D The bisector of $\angle BAC$ intersects the side BC at E.
Prove that $\angle ABC$ +$\angle ACD$ =2$\angle AEC$

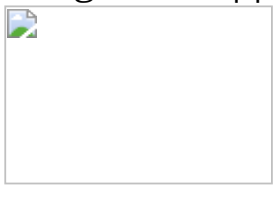


480) In figure the side BC of $\triangle$ ABC is produced to D.The bisector of $\angle A$ meets BC in L.
Prove that $\angle ABC$ +$\angle ACD$ =2$\angle ALC$

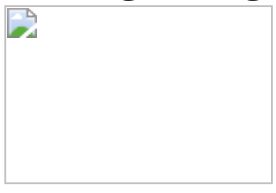
481) ABC is a triangle right angled at A,AL is drawn perpendicularto BC Show that $\angle BAL = \angle BAC$

482) The side EF,FD and DE of a traingle DEF are produced in order forming three exterior angles DFP,EDQ and FER respectively,Prove that
$\Rightarrow \angle DFP + \angle EDQ + \angle FER = 360^0$

483) In figure AB || DE,$\angle ABC = 75^0$ $\angle CDE = 145^0$ Find $\angle BCD$

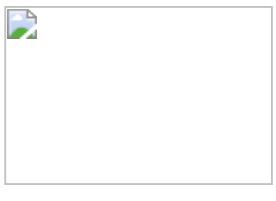


484) In the given figure prove that $\angle ADC = \angle A + \angle B + \angle C$



485) Prove that the sum of all the angles of a triangle is 180^0 Also find the triangle if they are in the ratio 5:6:7

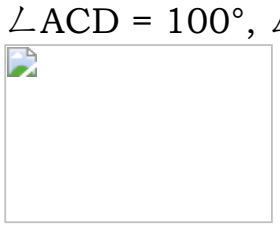
486) In figure PS is the bisector of $\angle QPR$ and $PT \perp QR$ show that $\angle TPS = \frac{1}{2}(\angle Q - \angle R)$



487) In figure the bisectors of $\angle ABC$ and $\angle BCA$ intersect each other at the point O.prove that $\angle BOC = 90^0 + \frac{1}{2}\angle A$

488) Two lines are respectively perpendicular to two parallel lines. Show that they are parallel to each other.

489) Sides BC, CA and BA of a ΔABC are produced to D, Q and P respectively as shown in the given figure. If ∠ACD = 100°, ∠QAP = 35°, then find all the angles of the triangle.



490) If the arms of one angle are respectively parallel to the arms of another angle, then show that the two angles are either equal or supplementary.

491) Bisectors of interior ∠B and exterior ∠ACD of a ΔABC intersect at the point T. Prove that ∠BTC = $\frac{1}{2}$ ∠BAC.

492) If the bisectors of the base angles of a triangle enclose an angle of 135°, then prove that the triangle is a right angled triangle.

493) In games period, the teacher decided to play the puzzle game. For this game, firstly the teacher draw a geometrical figure on the ground, which is shown as below:
Here line l is parallel to m and q is a transversal line. While drawing this figure, the teacher have no scale for measuring this length, but they know the side which is opposite to the smallest angle, is smaller and the side which is opposite to the largest angle, is larger. In this game, the teacher invite the two students Ankita and Vishal and said to them that specially Ankita stands on point A and Vishal stands on point B respectively (assume that both have some space of walking).
(i) Find the angle θ1, θ2 and θ3 as shown in the figure.
(ii) When both of them started moving along the lines, who will reach the firstly at point D?
(iii) What value is depicted in this question?

494) Prove that the sum of three angles of a triangle is 180°. Using this result, find the value of x and all three angles of triangle, if the angles are (2x + 7)°, (2x - 25)° and (3x -12)°.

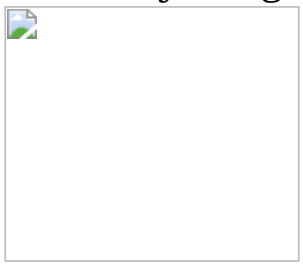
495) In a mathematical activity, a teacher asks students to divide a circular pizza of radius 13 cm into 5 equal parts. A student states that each part of pizza will subtend central angle of 72°. Is this answer true or false? Justify your answer. Which moral value is depicted?

496) In figure, m and n are two plane mirrors perpendicular to each other. Show that incident ray CA is parallel to reflected ray BD.

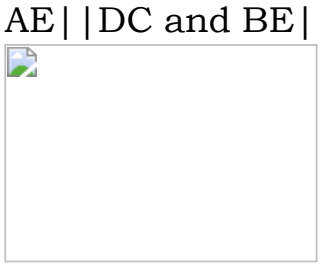
497) A transversal intersects two parallel lines. Prove that the bisectors of any pair of cosresponding angles so formed are parallel.

498) In the given figure, AB||DC, $\angle BDC = 35^o$ and $\angle BAD = 80^o$. Find x,y,z

499) In the adjoining figure, AB||CD and l is transversal. Find values of x and y.



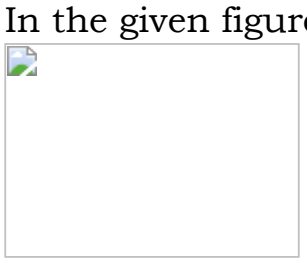
500) In the above figure ABCD is a quadrilateral in which $\angle ABC = 73^o, \angle C = 97^o$ and $\angle D = 110^o$. If AE||DC and BE||AD and AE intersects BC at F, find the measure of $\angle EBF$.



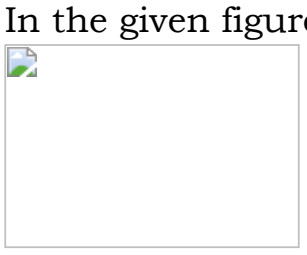
501) If two parallel lines are intersected by a transversal, then prove that bisectors of the interior angles form a rectangle.

502) Prove that the sum of all the angles of a triangle is 180^o . Also, find the angle of a triangle if they are in ratio 5:6:7.

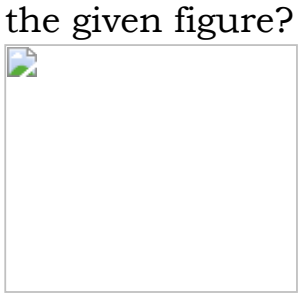
503) In the given figure, find the value of x and y if AB||CD.



504) In the given figure, $\angle ACD = \angle ABC$ CP bisects $\angle BCD$. Prove that $\angle APC = \angle ACP$.

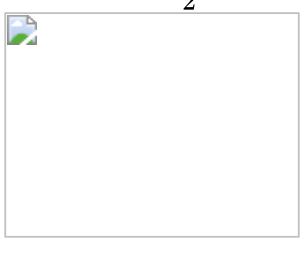


505) In the given figure, on a quadrilateral, ABCD shaped land is a village the panchayat has constructed a school specially for girls. What value are they exhibiting by doing so? How many triangles can be seen in the given figure? Find the measure of $\angle 1$



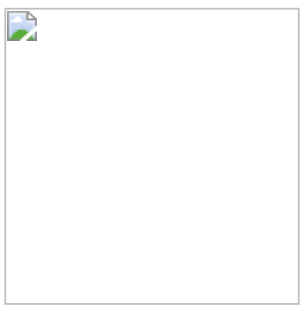
506) The sides AB and AC of $\triangle ABC$ are produced to points P and Q respectively. If bisectors BO and CO of $\angle CBP$ and $\angle BCQ$ respectively meet point O, then prove that $\angle BOC = 90^o - \frac{1}{2}x$

507) In the given figure, AP os the angle of bisector of $\angle A$ and PQ is the bisector $\angle ACD$. Prove that $\angle APC = \frac{1}{2}\angle ABC$



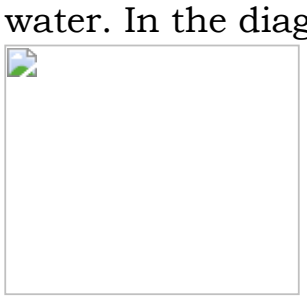
508) In the given figure, $AM \perp BC$ and AN is the bisector of $\angle A$. If $\angle ABC = 70^o$ and $\angle ACB = 20^o$. Find the value of $\angle MAN$.

509) A group of students prepared some decorative pieces is the shape of a stae for the orphans is an orphange Show that:
$\angle A + \angle B + \angle C + \angle D + \angle E + \angle F = 360^o$. What is gesture of students?



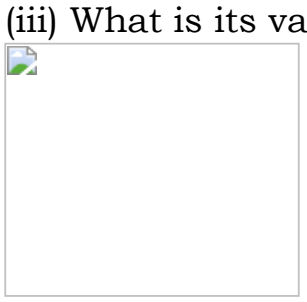
510) For spreading the message "Save Girl Child Save Future" a rally was organised by same students of a school. They were given triangular cardboard piece PQR which they divided into three part to make design are write slogan by drawing the bisector PM of angle p and perpendicular PN to base QR. Prove that $\angle MPN = \frac{1}{2}(\angle Q - \angle R)$ where $< Q > \angle R$. What is the benefit to these type of rallies?

511) Students in a school are preparing flags as shown below for a rally to make people aware of saving water. In the diagram below, $\triangle ABC$ is shown with AC extended through point D.

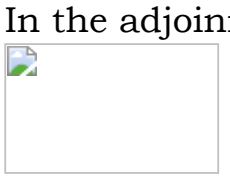


(i) If $\angle BCD = 6x + 2, \angle BAC = 3x + 15$ *and* $\angle ABC = 2x - 1,$ what is the value of x?
(ii) State the property used to solve this problem.
(iii) What value are they exhibiting by doing so?

512) In the following figure, $l||m$ and RT is a transversal. If OP and RS are respectively the bisectors of corresponding angles TOB and ORD.
(i) Prove that OP| |RS.|(ii) Which mathematical concept is used in this problem?
(iii) What is its value?



513) In the adjoining figure, AB ‖ CD. If ∠APQ = 54° and ∠PRD = 126°, then find x and y.

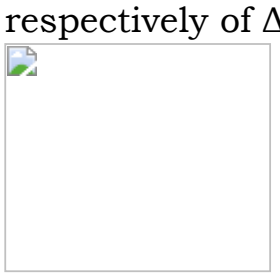


514) In the adjoining figure AB‖ CD‖ EG, find the value of x.

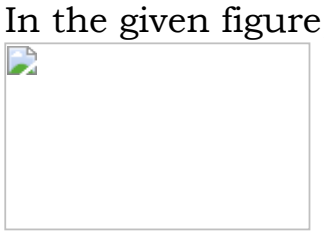
5 Marks 23 x 5 = 115

515) In the given figure, lines AB and CD intersect at O. If $\angle AOC + +\angle BOE = 70^\circ$, then find $\angle BOE$ and reflex $\angle COE$.

516) In the given figure, ∠X = 62°, ∠XYZ = 54°. If YO and ZO are the bisectors of ∠XYZ and ∠XZY, respectively of ΔXYZ, then find ∠OZY and ∠YOZ.



517) In the given figure, if PQ ⊥ PS, PQ || SR, ∠SQR = 28° and ∠QRT = 65°, then find the values of x and y.



518) In the given figure, the side QR of ΔPQR is produced to a point S. If the bisectors of ∠PQR and ∠PRS meet at point T, then prove that ∠QTR= $\frac{1}{2}$ ∠QPR.

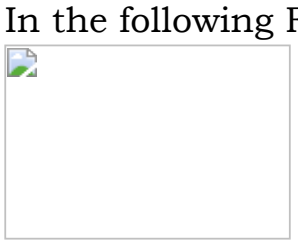
519) It is given that, ∠XYZ = 64 ° and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects ∠ZYP, then find ∠XYQ and reflex ∠QYP.

520) In the given figure, find the values of x and y and then show that AB || CD.

521) In the following figure, if x + y = w + z, then prove that AOB is a line.

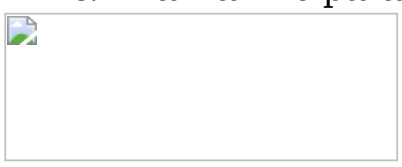
522) In the adjoining figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that ∠ROS = $\frac{1}{2}$ (∠QOS - ∠POS).

523) In the following Figure, if AB II CD, CD ll EF and y : z = 3 : 7, find x.

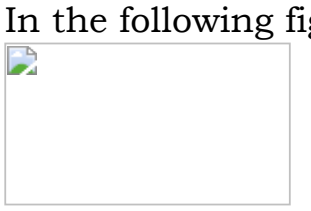


524) In the following figure, if AB II CD, EF ⊥ CD and ∠GED = 126° find ∠AGE, ∠GEF and ∠FGE.

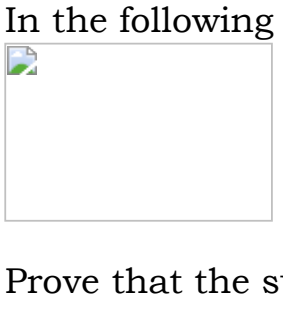
525) In the following figure, if PQ II ST, ∠PQR = 110° and ∠RST = 130° find ∠QRS.
Hint: Draw a line parallel to ST through point R.



526) In the following figure, if AB ‖ CD, ∠APQ = 50° and ∠PRD = 127° find x and y.



527) In the following figure, if AB ‖ DE, ∠BAC = 35° and ∠CDE = 53°, find ∠DCE.



528) Prove that the sum of the angles of a triangle is 180°.

529) Prove the following statement:
"If a side of a triangle is produced. then the exterior angle so formed is equal to the sum of the two interior opposite angles."

530) In the following figure, lines AB and CD intersect at O. If ∠AOC + ∠BOE = 70° and ∠BOD = 40° find ∠BOE and reflex ∠COE.

531) If the arms of an angle are respectively parallel to the arms of another angle, then show that the two angles are either equal or supplementary.

532) The angles of a triangle are in the ratio 2 : 3 : 5. Find the measure of each angle of the triangle.

533) In a triangle, the bisectors of ∠B and ∠C intersect each other at a point O. Prove that ∠BOC = 90° + $\frac{1}{2}$ ∠A.

534) In a ΔABC, if ∠A + ∠B = 150° and ∠E + ∠C = 100. Find the measure of each angle of the triangle.

535) In a triangle, if ∠A = 2∠B = 6∠C, find the measures of ∠A, ∠B, ∠C.

536) On Monday Prashant's school bus was late due to a traffic jam and his maths class was missed. He was very upset as his teacher had introduced a new topic on geometry. Rahul promised to help him after school. Rahul went to Prashant's house and explained him the topic. He also gave him the following test also:
Which of the following statements are true?
(a) Two adjacent angles are said to form a linear pair of angles, if their uncommon arms are two opposite rays.
(b) The sum of all the angles around a point is equal to 180°.
(c) The measure of an angle is twice the measure of its supplementary angle. It's measure is 60°