

# 6

## Symmetry

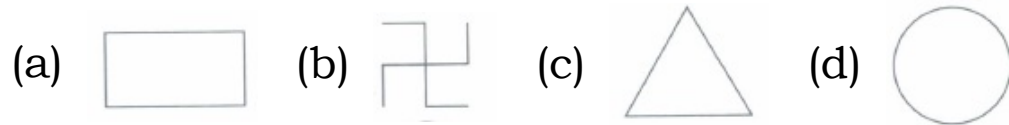
6th Standard  
Mathematics

Exam Time : 00:01:00 Hrs

Total Marks : 1

26 x 1 = 26

1) In the following figures, the figure that is not symmetric with respect to any line is



2) The number of lines of symmetry in a scalene triangle is

- (a) 0 (b) 1 (c) 2 (d) 3

3) Which of the following letters does not have any line of symmetry?

- (a) E (b) T (c) N (d) X

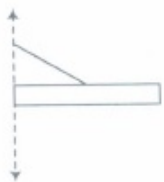
4) The number of lines of symmetry in a circle is

- (a) 0 (b) 2 (c) 4 (d) more than 4

5) Which of the following letters does not have the vertical line of symmetry?

- (a) M (b) H (c) E (d) V

6) Complete the figure, so that the dotted line is the line of symmetry.

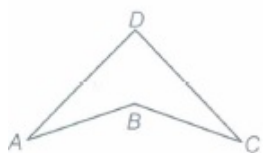


7) Line of symmetry of given figure is



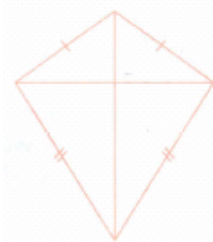
- (a) horizontal (b) vertical (c) Both (a) and (b) (d) None of these

8) How many lines of symmetry are there in the given figure?



- (a) One (b) Two (c) Three (d) Four

9) How many lines of symmetry does the figure have?



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

10) How many lines of symmetry does the figure have?



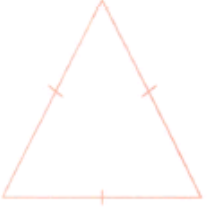
- (a) 1 (b) 2 (c) 3 (d) 4

11) How many lines of symmetry does the figure have?



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

12) How many lines of symmetry does the figure have?



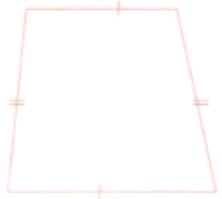
- (a) 1 (b) 2 (c) 3 (d) 4

13) How many lines of symmetry does the figure have?



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

14) How many lines of symmetry does the figure have?



- (a) 1 (b) 2 (c) 3 (d) no line of symmetry

15) How many lines of symmetry does the figure have?



- (a) 1 (b) 2 (c) 3 (d) Countless.

16) How many lines of symmetry does the figure have?



- (a) 0 (b) 1 (c) 2 (d) Countless

17) How many lines of symmetry does the figure have?



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

18) How many lines of symmetry does a regular hexagon have?

- (a) 1 (b) 3 (c) 4 (d) 6

19) Which of the following letters has horizontal line of symmetry?

- (a) C (b) A (c) J (d) L

20) Which of the following letters has horizontal line of symmetry?

- (a) Z (b) V (c) U (d) E

21) Which of the following letters has horizontal line of symmetry?

- (a) S (b) W (c) D (d) Y

22) Which of the following letters has vertical line of symmetry?

- (a) R (b) C (c) B (d) T

23) Which of the following letters has vertical line of symmetry?

- (a) N (b) K (c) B (d) M

24) Which of the following letters has vertical line of symmetry?

- (a) J (b) D (c) E (d) O

25) Which of the following letters has no line of symmetry?

- (a) P (b) O (c) H (d) X

26) Which of the following letters has no line of symmetry?

- (a) O (b) X (c) I (d) Q

$$10 \times 1 = 10$$

27) A line of \_\_\_\_\_ divides a figure into two matching parts.

28) An isosceles triangle has \_\_\_\_\_ line of symmetry.

29) An equilateral triangle has \_\_\_\_\_ lines of symmetry.

30) A scalene triangle has \_\_\_\_\_ line of symmetry.

31) The distance of the image of a point (or an object) from the line of symmetry (mirror) is \_\_\_\_\_ as that of the point (object) from the line (mirror).

32) The number of line of symmetry in a picture of Taj Mahal is \_\_\_\_\_

33) The number of lines of symmetry in a rectangle and a rhombus are \_\_\_\_\_ (equal/unequal).

34) The number of lines of symmetry in a rectangle and a square are \_\_\_\_\_. (equal / unequal).

35) If a line segment of length 5 cm is reflected in a line of symmetry (mirror), then its reflection (image) is a line of length \_\_\_\_\_

36) If an angle of measure  $80^\circ$  is reflected in a line of symmetry, then the reflection is an \_\_\_\_\_ of measure \_\_\_\_\_.

$$10 \times 1 = 10$$

37) The letter D has one line of symmetry.

- (a) False (b) True

38) The letter N has two lines of symmetry.

- (a) True (b) False

39) Irregular shapes have zero line of symmetry.

- (a) True (b) False

40) If an isosceles triangle has more than one line of symmetry, then it need not be an equilateral triangle.

- (a) True (b) False

41) If a rectangle has more than two lines of symmetry, then it must be a square.

- (a) False (b) True

42) A right triangle can have atmost one line of symmetry.

- (a) False (b) True

43) A kite has two lines of symmetry.

- (a) True (b) False

44) A parallelogram has no line of symmetry.

- (a) False (b) True

45) An equilateral triangle has more than one line of symmetry.

- (a) False (b) True

46) A square and a rectangle have the same number of lines of symmetry.

- (a) True (b) False

$$7 \times 1 = 7$$

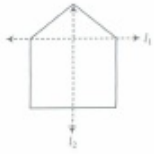
- |                          |                     |
|--------------------------|---------------------|
| 47) Isosceles triangle   | (1) 0               |
| 48) Square               | (2) 3               |
| 49) Circle               | (3) 2               |
| 50) Equilateral triangle | (4) 6               |
| 51) Rectangle            | (5) 4               |
| 52) Regular hexagon      | (6) infinitely many |
| 53) Scalene triangle     | (7) 1               |

$$85 \times 2 = 170$$

54) You have two set-squares in your 'mathematical instruments box'. Are they symmetric?

55) List any four symmetrical objects from your home or school.

56) For the given figure, which one is the mirror line,  $I_1$  or  $I_2$ ?



57) Identify the shapes given below. Check whether, they are symmetric or not. Draw the line of symmetry as well.



58) Identify the shapes given below. Check whether, they are symmetric or not. Draw the line of symmetry as well.



59) Identify the shapes given below. Check whether, they are symmetric or not. Draw the line of symmetry as well.



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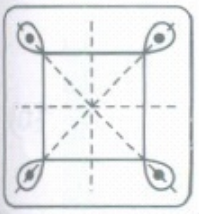
61) Identify the shapes given below. Check whether, they are symmetric or not. Draw the line of symmetry as well.



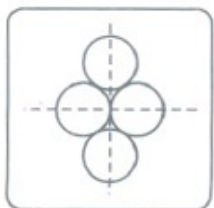
62) Identify the shapes given below. Check whether, they are symmetric or not. Draw the line of symmetry as well.



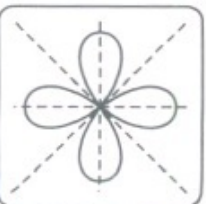
63) How many lines of symmetry are there for the following figures?



64) How many lines of symmetry are there for the following figures?



65) How many lines of symmetry are there for the following figures?



66) Find out that the figure is symmetrical or not?



67) Is the following figure symmetrical?



68) How many figures given below are symmetrical?



69) Is the following figure symmetrical?



70) Define symmetry.

71) Are human faces symmetrical?

72) If you are 100 cm in front of a mirror, where does your image appear to be? If you move towards the mirror, how does your image move?

73) Find the number of lines of symmetry in the following shapes. How will you check your answers?



74) Find the number of lines of symmetry in the following shapes. How will you check your answers?



75) Find the number of lines of symmetry in the following shapes. How will you check your answers?



76) Find the number of lines of symmetry in the following shapes. How will you check your answers?



77) Find the number of lines of symmetry in the following shapes. How will you check your answers?



78) Find the number of lines of symmetry in the following shapes. How will you check your answers?



79) In a kaleidoscope, how many mirror strips are used?

80) Give the mirror image of English letter R.

81) List any three letters having same mirror image as the object (identical).

82) In the word 'SYMMETRY', which letters do not have identical mirror images?

83) Is Indian flag symmetrical? If yes, state the line of symmetry.

84) In the word 'FIGURE', mention the symmetrical letters.

85) Are the number of symmetrical lines equal in rectangle and square?

86) What are symmetrical figures?

87) What is a line of symmetry?

88) How many lines of symmetry a human face has?

89) Name a figure having many lines of symmetry.

90) Name two letters having only vertical line of symmetry.

91) How many lines of symmetry a rectangle has?

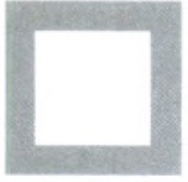
92) Write two letters having only horizontal line of symmetry.

93) Give two letters having same mirror reflection.

94) How many lines of symmetry are there in a semi-circle?

95) How many lines of symmetry are there in an angle? What is the name given to it ?

96) Find the number of lines of symmetry for each of the following shapes.



97) Find the number of lines of symmetry for each of the following shapes.



98) Find the number of lines of symmetry for each of the following shapes.



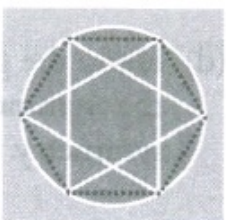
99) Find the number of lines of symmetry for each of the following shapes.



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101) Find the number of lines of symmetry for each of the following shapes.



102) Find the number of lines of symmetry for each of the following shapes.



103) Find the number of lines of symmetry for each of the following shapes.

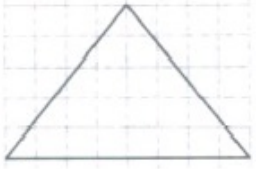


104) Find the number of lines of symmetry for each of the following shapes.

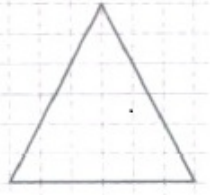




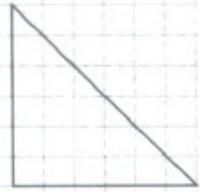
105) Copy the triangle in each of the following figures on squared paper. In each case, draw the line(s) of symmetry, if any and identify the type of triangle.



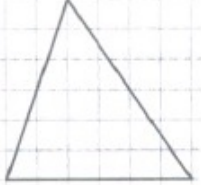
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108) Copy the triangle in each of the following figures on squared paper. In each case, draw the line(s) of symmetry, if any and identify the type of triangle.



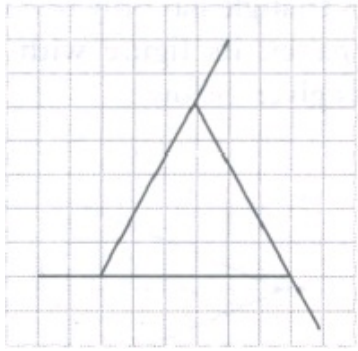
109) Can you draw a triangle which has exactly one line of symmetry?

110) Can you draw a triangle which has exactly two lines of symmetry?

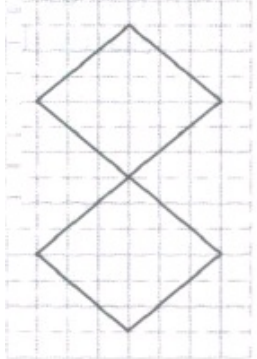
111) Can you draw a triangle which has exactly three lines of symmetry?

112) Can you draw a triangle which has no lines of symmetry?

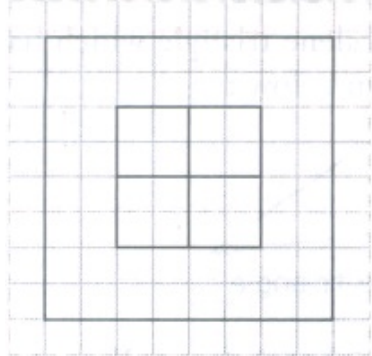
113) Trace each figure and draw the lines of symmetry, if any.



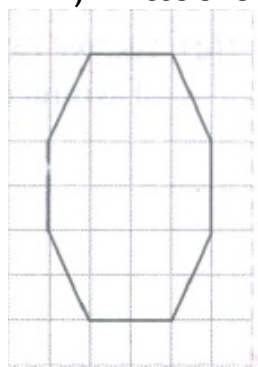
114) Trace each figure and draw the lines of symmetry, if any.



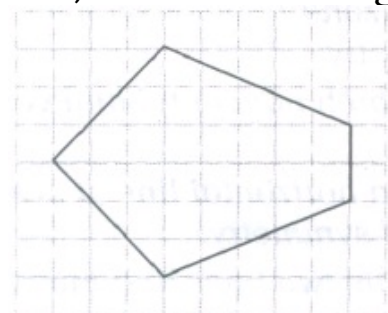
115) Trace each figure and draw the lines of symmetry, if any.



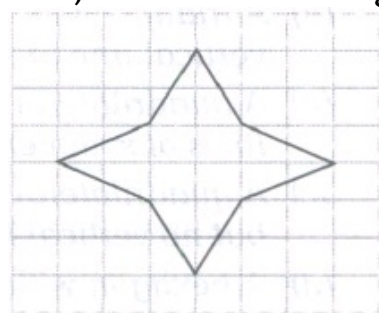
116) Trace each figure and draw the lines of symmetry, if any.



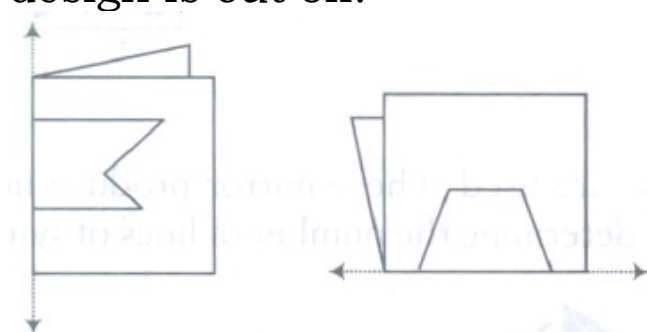
117) Trace each figure and draw the lines of symmetry, if any.



118) Trace each figure and draw the lines of symmetry, if any.



119) Given here are figures of a few folded sheets and designs drawn about the fold. In each case, draw a rough diagram of the complete figure that would be seen, when the design is cut off.



120) Find the number of lines of symmetry of a regular hexagon.

121) Find the number of lines of symmetry of figure given below:



122) Name the line of symmetry of English alphabet letter.



123) State any two lines of symmetry.

124) Name the line of symmetry of the figure given below:

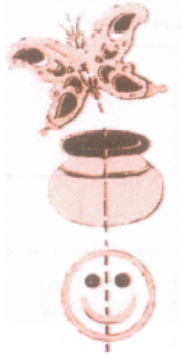


125) Find the line of symmetry of the letter of English alphabet Z.

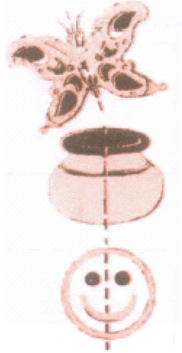
126) How many lines of symmetry does an equilateral triangle have?



127) The shapes you see here are symmetrical. Why?



128) How do you name the dotted line in the figure?



129) Where will you place the mirror for having the image exactly over the other half of the picture?

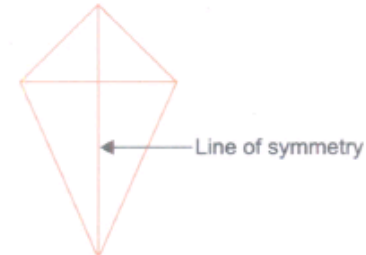


130) The adjacent figure is not symmetrical. Can you tell 'why not'?



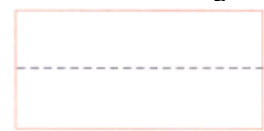
131) List a few objects you find in your class room such as the black board, the table, the wall, the textbook, etc. Which of them are symmetric and which are not? Can you identify the lines of symmetry for those objects which are symmetric?

132) How many lines of symmetry does the shape have?



133) Do you think that some shapes may have more than one line of symmetry?

134) Take a rectangular sheet (like a postcard). Fold it once lengthwise so that one half fits exactly over the other half. Is this fold a line of symmetry? Why?



1st fold

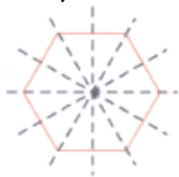


2nd fold

135) Open it up now and again fold on its width in the same way. Is this second fold also a line of symmetry? Why?



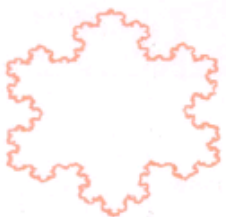
136) Can you think of a figure that has six lines of symmetry?



137) Here is a pair of scissors? How many lines of symmetry does it have?

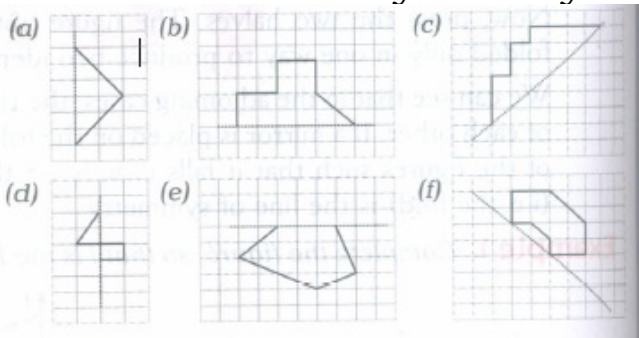


138) Find the lines of symmetry in this figure.



$$33 \times 3 = 99$$

139) Copy the following on a squared paper. A square paper is what you would have used in your arithmetic notebook in earlier classes. Then, complete them such that the dotted line is the line of symmetry.



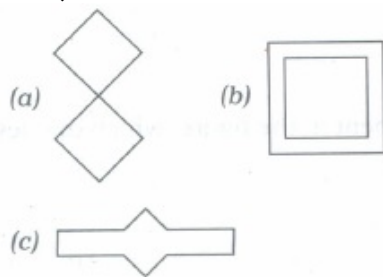
140) In the given figure, l is the line of symmetry. Complete the diagram to make it symmetric.



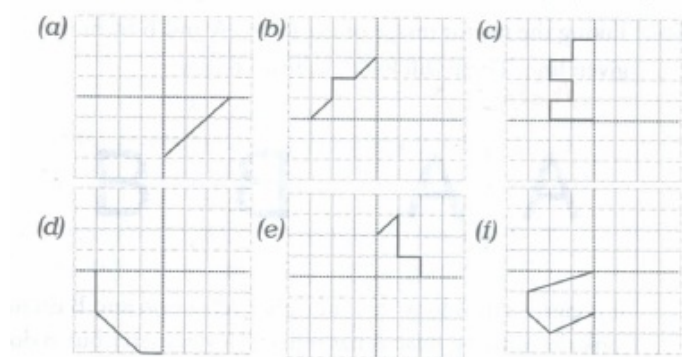
141) In the figure given alongside, l is the line of symmetry. Draw the image of the triangle and complete the diagram, so that it becomes symmetric.



142) Draw two lines of symmetry in the following figures.

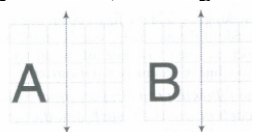


143) Copy the following drawing on squared paper. Complete each one of them such that the resulting figure has two dotted lines as two lines of symmetry.



How did you go about completing the picture?

144) In each figure given below, a letter of the alphabet is shown along with a vertical line. Take the mirror image of the letter in the given line. Find which letters look the same after reflection (i.e. which letters look the same in the image) and which do not? Can you guess, why?



145) Write the number of lines of symmetry of the figure.



146) Write the letters of the word ALGEBRA which have no line of symmetry.

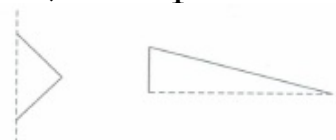
147) For the following figure, which one is the mirror line?



148) Write all the capital letters of the English alphabets which have more than one lines of symmetry.

149) Write the letters of the word 'MATHEMATICS' which have no line of symmetry.

150) Complete the figure along the line of symmetry.



151) On a squared paper, sketch the following :

A triangle with a horizontal line of symmetry but no vertical line of symmetry.

**(Hint** It will be helpful, if you first draw the lines of symmetry and then complete the figures.)

152) On a squared paper, sketch the following :

A quadrilateral with both horizontal and vertical lines of symmetry.

**(Hint** It will be helpful, if you first draw the lines of symmetry and then complete the figures.)

153) Consider the letters of English alphabets A to Z. List among them the letters which have

(a) vertical lines of symmetry (like A).

(b) horizontal lines of symmetry (like B).

(c) no lines of symmetry (like Q).



154) State the line of symmetry of letters E and B.

155) In the word 'PICTURE', mention the letter with no line of symmetry.

156) How many lines of symmetry does a regular pentagon have?

157) Complete the figure, given its line of symmetry.



158) Complete the figure, given its line of symmetry.



159) Find the line of symmetry of English letter



160) How many lines of symmetry are there in the given figure?



161) How many symmetrical lines are there In the given figure?



162) In the given figure, line of symmetry is



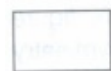
163) Following letters of the English alphabet are symmetrical about a line. Identify a line of symmetry in each case.

- (a) A
- (b) W
- (c) Y
- (d) B
- (e) E

164) How many lines of symmetry do the following figures have?



165) How many lines of symmetry do the following figures have?



166) How many lines of symmetry do the following figures have?



167) How many lines of symmetry do the following figures have?



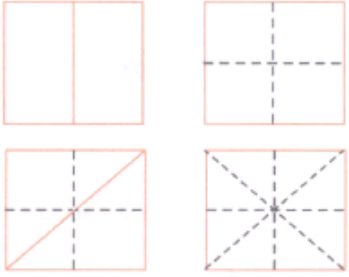
168) Draw the mirror images of the following figures.



169) Take a piece of paper. Fold it in half. Spill a few drops of ink on one half side. Now press the halves together. What do you see? Is the resulting figure symmetric? If yes, where is the line of symmetry? Is there any other line along which it can be folded to produce two identical parts? Try more such patterns.

170) **Inked-string Patterns:** Fold a paper in half. On one half-portion, arrange short lengths of string dipped in a variety of coloured inks or paints. Now press the two halves. Study the figure you obtain. Is it symmetric? In how many ways can it be folded to produce two identical halves?

171) Take a square piece of paper. Fold it into half vertically, fold it again into half horizontally. (i. e., you have folded it twice J. Now open out the folds and again fold the square into half (for a third time now), but this time along a diagonal, as shown in the figure. Again open it and fold it into half (for the fourth time J, but this time along the other diagonal, as shown in the figure. Open out the fold. How many lines of symmetry does the shape have?

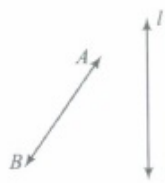


$$18 \times 5 = 90$$

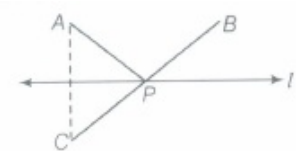
172) Form as many shapes as you can by combining two or more set-squares. Draw them on squared paper and note their line of symmetry.

173) Write the number of lines of symmetry in each letter of the word 'SYMMETRY' and draw the line of symmetry.

174) Draw the images of points A and B in line l of figure and name them as A' and B', respectively. Measures AB and A' B'. Are they equal?



175) In figure, the point C is the image of point A in line l and line segment BC intersects the line l at P.



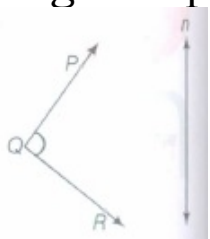
(a) Is the image of P in line l the point P itself?

(b) Is  $PA = PC$ ?

(c) Is  $PA + PB = PC + PB$ ?

(d) Is P that point on line l from which the sum of the distances of points A and B is minimum?

176) Draw the images P', Q' and R' of the points P, Q and R, respectively in the line n. Join P'Q' and Q'R' to form an angle P'Q'R'. Measure  $\angle POR$  and  $\angle P'Q'R'$ . Are the two angles equal?



177) Complete the following figures.

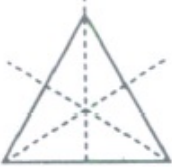


178) The number of lines of symmetry in the given figure is \_\_\_\_\_





179) Complete the following table.

	SHAPE	ROUGH FIGURE	NUMBER OF LINES OF SYMMETRY
(i)	Equilateral triangle		3
(ii)	Square		
(iii)	Rectangle		
(iv)	Isosceles triangle		
(v)	Rhombus		
(vi)	Circle		

180) Complete the figure shown below:



181) Draw lines of symmetry of the following figure.



182) Mention the lines of symmetry.



183) Count the number of lines of symmetry



184) How many lines of symmetry does the given figure have?



185) Mention the line of symmetry of the figure given below:



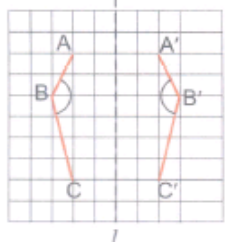
186) In the word 'IMAGE', which letter has identical mirror image?

187) How many lines of symmetry does the given figure have?





188) On a squared sheet, draw the figure ABC and find its mirror image A 'B'C' with l as the mirror line.



Compare the lengths of  
AB and A'B';  
BC and B'C';  
AC and A'C.

Are they different?

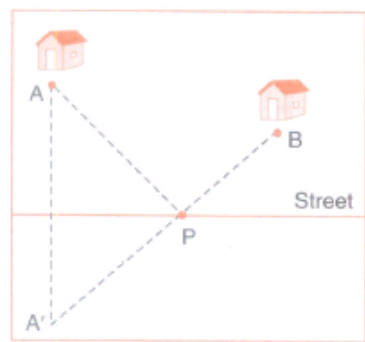
Does reflection change length of a line segment?

Compare the measures of the angles (use protractor to measure) ABC and A 'B'C'. Does reflection change the size of an angle?

Join AA', BB' and CC'. Use your protractor to measure the angles between the lines l and AA', l and BB', l and CC'.

What do you conclude about the angle between the mirror line l and the line segment joining a point and its reflected image?

189) A paper-delivery boy wants to park his cycle at some point P and deliver the newspapers to houses A and B. Where should he park the cycle so that his walking distance AP + BP will be least?



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