

2021 WASSCE MATHEMATICS PAPER 1 OBJECTIVE

1

correct 0.007985 to three significant figures.

- A. 0.0109
- B. 0.0800
- C. 0.00799
- D. 0.008

2

Simplify: $(11_{\text{two}})^2$

- A. 1001_2
- B. 1101_2
- C. 101_2
- D. 10001_2

3

Solve: $2^{\sqrt{2x+1}} = 32$

- A. 13
- B. 24
- C. 12
- D. 11

4

If $\log_{10} 2 = m$ and $\log_{10} 3 = n$, find $\log_{10} 24$ in terms of m and n .

- A. $3m + n$
- B. $m + 3n$
- C. $4mn$
- D. $3mn$

5

Find the 5th term of the sequence 2,5,10,17....?

- A. 22
- B. 24
- C. 36
- D. 26

6

If $P = \{-3 < x < 1\}$ and $Q = \{-1 < x < 3\}$, where x is a real number, find $P \cap Q$.

- A. 0
- B. -3, -2, -1, 0 and 1
- C. -2, -1 and 0
- D. -1, 0 and 1

7

Factorize $6pq - 3rs - 3ps + 6qr$

- A. $3(r - p)(2q + s)$
- B. $3(p + r)(2q - 2q - s)$
- C. $3(2q - s)(p + r)$
- D. $3(r - p)(s - 2q)$

8

What number should be subtracted from the sum of $2\frac{1}{6}$ and $2\frac{7}{12}$ to give $3\frac{1}{4}$?

- A. $\frac{1}{3}$
- B. $1\frac{1}{2}$
- C. $1\frac{1}{6}$
- D. $\frac{1}{2}$

9

Mensah is 5 years old and joyce is thrice as old as mensah. In how many years will joyce be twice as old as Mensah?

- A. 3 years

- B. 10 years
- C. 5 years
- D. 15 years

10

If $16 * 2^{(x+1)} = 4^x * 8^{(1-x)}$, find the value of x.

- A. -4
- B. 4
- C. 1
- D. -1

11

The circumference of a circular track is 9km. A cyclist rides round it a number of times and stops after covering a distance of 302km. How far is the cyclist from the starting point?

- A. 5km
- B. 6km
- C. 7km
- D. 3km

12

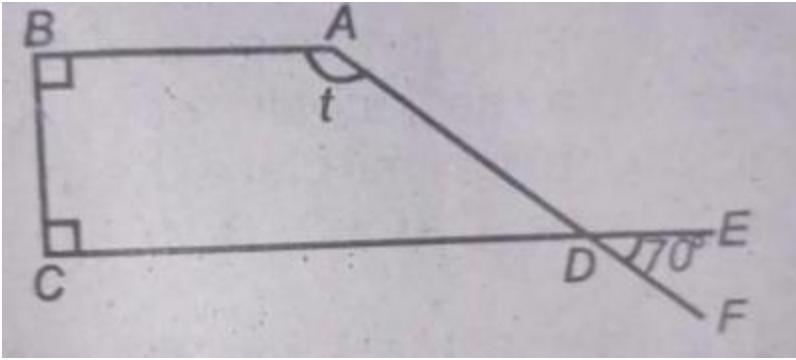
Simplify $2\sqrt{7} - 14/\sqrt{7} + 7/21$

- A. $\frac{\sqrt{21}}{21}$
- B. $7\frac{\sqrt{21}}{21}$
- C. $\frac{\sqrt{21}}{7}$
- D. $3\sqrt{21}$

13. If $4x+2y=16$ and $6x-2y=4$, find the value of (y-x).

- A. 8
- B. 2
- C. 4
- D. 6

14



In the diagram, $\angle ABC$ and $\angle BCD$ are right angles, $\angle BAD = t$ and $\angle EDF = 70^\circ$. Find the value of t .

- A. 70°
- B. 165°
- C. 140°
- D. 110°

15

The sum of the interior angles of a regular polygon with k sides is $(3k-10)$ right angles. Find the size of the exterior angle?

- A. 60°
- B. 40°
- C. 90°
- D. 120°

16

make u the subject in $x = \frac{2u-3}{3u+2}$

- A. $u = \frac{2x+3}{3x-2}$
- B. $u = \frac{2x-3}{3x-2}$
- C. $u = \frac{2x+3}{2-3x}$
- D. $u = \frac{2x+3}{3x+2}$

17

A trader paid import duty of 38 kobo in the naira on the cost of an engine. If a total of #22,800.00 was paid as import duty, calculate the cost of the engine.

- A. #60,000.00

B. #120,000.00

C. #24,000.00

D. #18,000.00

18

The height of an equilateral triangle of side is $10\sqrt{3}$ cm. calculate its perimeter.

A. 20cm

B. 60cm

C. 40cm

D. 30cm

19.

In $\triangle LMN$, $|LM| = 6\text{cm}$, $\angle LNM = x$ and $\sin x = \frac{3}{5}$.

Find the area of $\triangle LMN$

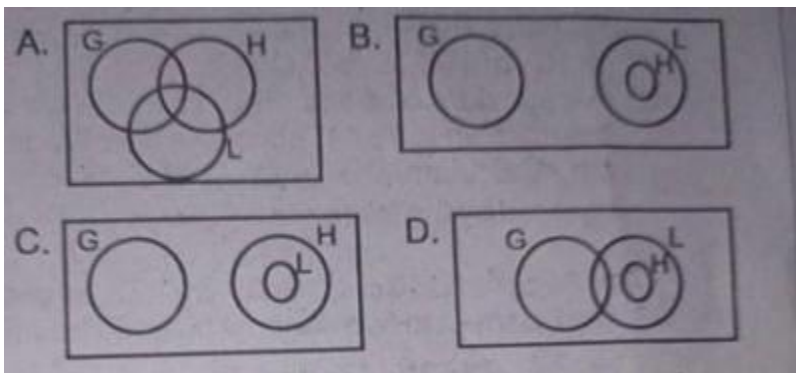
A. 60cm^2

B. 48cm^2

C. 24cm^2

D. 30cm^2

20



consider the statements:

P = All students offering Literature(L) also offer History(H);

Q = Students offering History(H) do not offer Geography(G).

Which of the Venn diagram correctly illustrate the two statements?

A. A

B. B

C. C

D. D

21

Find The quadratic Equation Whose Roots Are $-2q$ And $5q$.

A. $3x^2 + 3qx - 10q^2$

B. $x^2 + 3qx + 10q^2$

C. $x^2 - 3qx + 10q^2$

D. $x^2 - 3qx - 10q^2$

22

If $\tan\theta = \frac{3}{4}$, $180^\circ < \theta < 270^\circ$, find the value of $\cos\theta$.

A. $\frac{4}{5}$

B. $\frac{3}{5}$

C. $-\frac{4}{5}$

D. $-\frac{3}{5}$

23

If $\frac{2}{x-3} - \frac{3}{x-2} = \frac{p}{(x-3)(x-2)}$, find p.

A. $5 - x$

B. $-(x + 5)$

C. $13 - x$

D. $-(5x - 13)$

24

The diagonal of a rhombus are 12cm and 5cm. calculate its perimeter

A. 26cm

B. 24cm

C. 17cm

D. 34cm

25

In the diagram, $\triangle XYZ$ is produced to T. if $|XY| = |ZY|$ and $\angle XYT = 40^\circ$, find $\angle XZT$

A. 110°

B. 130°

C. 140°

D. 180°

26

A solid brass cube is melted and recast as a solid cone of height h and base radius r . If the height of the cube is h , find r in terms of h .

A. $r = h$

B. $r = \sqrt{\frac{3h}{\pi}}$

C. $r = \pi h$

D. $r = h \sqrt{\frac{3}{h}}$

27

Which of the following is not an exterior angle of a regular polygon?

A. 66°

B. 72°

C. 24°

D. 15°

28

From a point T, a man moves 12km due west and then moves 12km due south to another point Q. Calculate the bearing of T from Q.

A. 225°

B. 315°

C. 045°

D. 135°

29

In the diagram O is the centre of the circle PQRS, $\angle PQR = 72^\circ$ and OR is parallel to PS. Find .

A. 18°

B. 108°

C. 54°

D. 36°

30

A trapezium of parallel sides 10cm and 21cm and height 8cm is inscribed in a circle of radius 7cm. calculate the area of the region not covered by the trapezium.

$\pi = 22/7$

A. 84cm^2

B. 80cm^2

B. 30cm^2

D. 94cm^2

31

Find, correct to two decimal, the mean of $1\frac{1}{2}$, $2\frac{2}{3}$, $3\frac{3}{4}$, $4\frac{4}{5}$, and $5\frac{5}{6}$.

A. 3.71

B. 3.70

C. 3.69

D. 3.72

32

A cyclist moved at a speed of $X\text{km/h}$ for 2 hours. He then increased his speed by 2 km/h for the next 3 hours.

If the total distance covered is 36 km, calculate his initials speed.

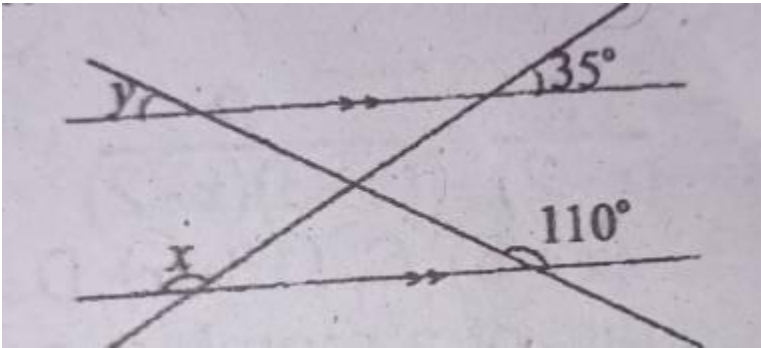
A. 12km/h

B. 3km/h

C. 4km/h

D. 6km/h

33



find the value of $(x+y)$

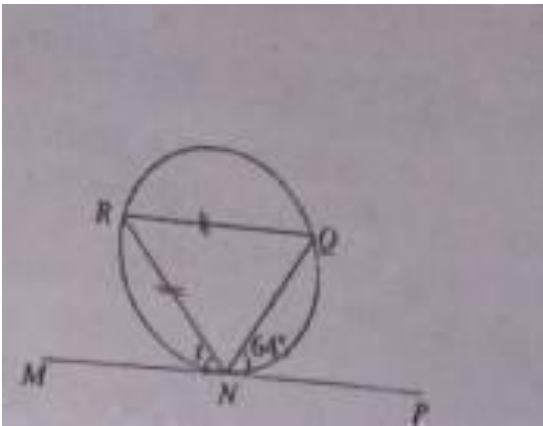
A. 215°

B. 70°

C. 135°

D. 145°

34



In the diagram, MP is a tangent to the circle NQR, $\angle NQR$, $\angle PNQ = 64$ and $|RQ| = |RN|$. Find the angle marked t.

A. 130°

B. 115°

C. 58°

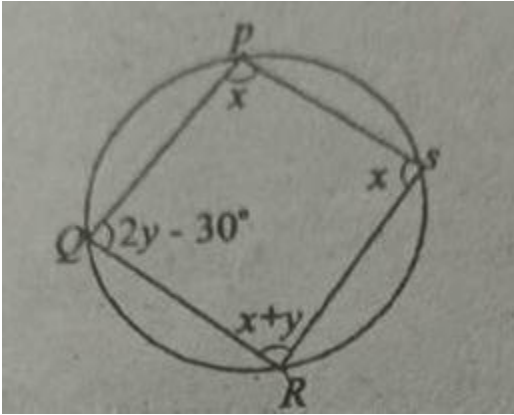
D. 68°

35

Find the first quartile of 7,8,7,9,11,8,7,9,6 and 8.

- A. 8.5
- B. 7.0
- C. 7.5
- D. 8.0

36



In the diagram, PQRS is a circle. find the value of x .

- A. 50°
- B. 30°
- C. 80°
- D. 100°

37

A cone has a base radius of 8cm and height 11cm. calculate , correct to 2d.p, the curved surface area

- A. 341.98cm^2
- B. 276.57cm^2
- C. 201.14cm^2
- D. 477.71cm^2

38

Given that $\sin x = 3/5$, $0 \leq x \leq 90$, evaluate $(\tan x + 2\cos x)$

- A. $2\frac{11}{20}$
- A. $\frac{11}{20}$
- B. $2\frac{7}{20}$
- D. $\frac{1}{20}$

39

In the diagram, line EC is a diameter of the circle ABCDE.

If angle ABC equals 158° , find $\angle ADE$

- A. 112
- B. 90
- C. 68
- D. 22

40

Height(cm)	160	161	162	163	164	165
No. of players	4	6	3	7	8	9

the table shows the height of 37 players of a basketball team calculates correct to one decimal place the mean height of the players.

- A. 163.0
- B. 162.0
- C. 160.0
- D. 165.0

41

XY is a line segments with the coordinates X (- 8,- 12) and Y(p,q). if the midpoint of XY is (-4,-2) find the coordinates of Y.

- A. (-6,-2)
- B. (0,8)
- C. (4,10)
- D. (0,4)

42

500 tickets were sold for a concert tickets for adults and children were sold at \$4.50 and \$3.00 respectively if the total receipts for the concerts was \$1987.50 how many tickets for adults were sold?

- A. 325
- B. 235
- C. 175
- D. 400

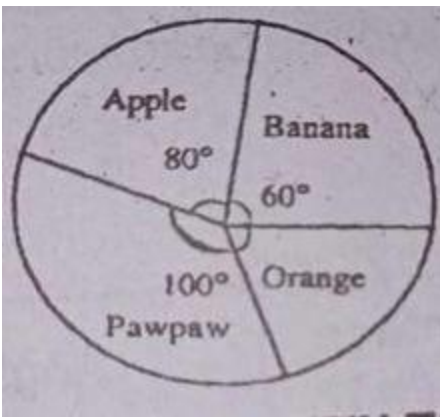
43

The distance d between two villages east more than 18 KM but not more than 23KM.

which of these inequalities represents the statements?

- A. $18 \leq d \leq 23$
- B. $18 < d < 23$
- C. $18 \leq d < 23$
- D. $18 < d \leq 23$

44



The pie chart represents the distribution of fruits on display in the shop if there are 60 apples on display how many oranges are there?

- A. 80
- B. 270
- C. 120
- D. 90

45

A box contains 40 identical balls of which 10 are red and 12 are blue. if a ball is selected at random from the box what is the probability that it is neither red nor blue?

- A. $\frac{9}{20}$
- B. $\frac{3}{10}$
- C. $\frac{1}{4}$
- D. $\frac{11}{20}$

46

A fair die is tossed twice what is the probability of get a sum of at least 10.

- A. $\frac{5}{36}$
- B. $\frac{2}{3}$
- C. $\frac{5}{18}$
- D. $\frac{1}{6}$

47

A man will be $(x+10)$ years old in 8 years time. If 2 years ago he was 63 years., find the value of x

- A. 55
- B. 63
- C. 57
- D. 67

48

The equation of a line is given as $3x - 5y = 7$. Find its gradient (slope)

- A. $\frac{5}{3}$.
- B. $\frac{3}{5}$.
- C. $-\frac{3}{5}$.
- D. $-\frac{5}{3}$.

For what value of x is $\frac{4 - 2x}{x + 1}$ undefined.

- A. 2
- B. -1
- C. 1
- D. -2