WAEC

MATHS objective

Past questions

(PT. 1–7)

For both: **SSCE & GCE**

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WAEC MATHS OBJECTIVE QUESTIONS (PT.1)

1. Simplify 0.000215 x 0.000028 and express your answer in standard form.

A. 6.03×10^{9}

B. 6.02×10^{9}

C. 6.03×10^{-9}

D. 6.02×10^{-9}

2. Factorise x + y – ax – ay

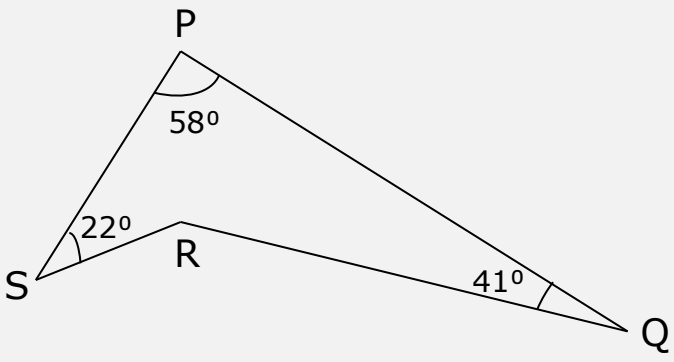
A. (x – y)(1 – a)

B. (x + y)(1 – a)

C. (x + y)(1 – a)

D. (x – y)(1 + a)

3. In the diagram, ∠PSR = 22º, ∠SPQ = 58º and ∠PQR = 41º. Calculate the obtuse angle QRS.



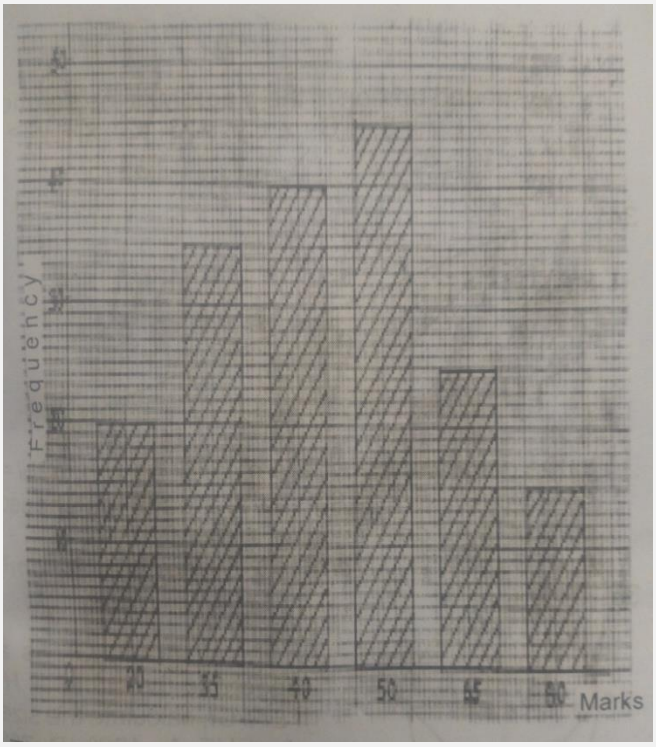
A. 99º

B. 100º

C. 121º

D. 165º

The bar chart shows the mark distribution in an English test. Use it to answer questions 4 and 5.



4. If 50% is the pass mark, how many students passed the test?

A. 100

B. 85

C. 80

D. 70

5. What percentage of students had marks ranging from 35 to 50?

A. $55\frac{1}{3}\%$

B. 60%

C. 65%

D. $66\frac{2}{3}\%$

6. A car uses one litre of petrol for every 14 km. If one litre of petrol costs N63.00, how far can the car go with N900.00 worth of petrol?

A. 420 km

B. 405 km

C. 210 km

D. 200 km

7. Correct 0.002473 to 3 significant figures.

A. 0.002

B. 0.0024

C. 0.00247

D. 0.0025

8. Simplify $1\frac{1}{2} + 2\frac{1}{3} \times \frac{3}{4} - \frac{1}{2}$

A. $-2\frac{1}{3}$

B. $-2\frac{1}{4}$

C. $2\frac{1}{8}$

D. $2\frac{3}{4}$

9. The sum of 2 consecutive whole numbers is $\frac{5}{6}$ of their product. Find the numbers.

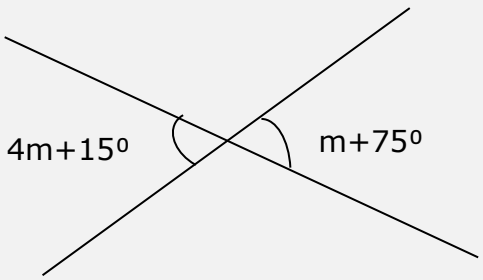
A. 3, 4

B. 1, 2

C. 2, 3

D. 0, 1

10.



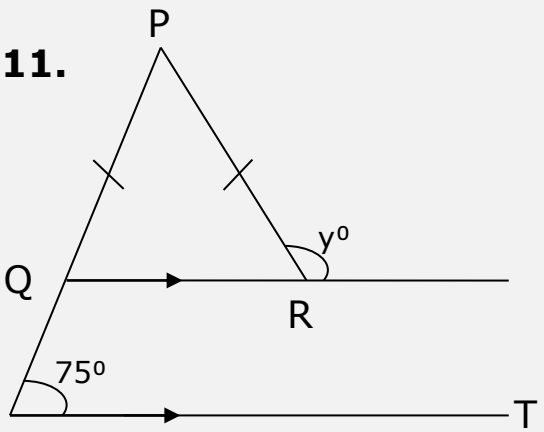
A. 20^0

B. 30^0

C. 40^0

D. 50^0

11.



In the diagram, QR//ST, /PQ/ = /PR/ and ∠PST = 75º. Find the value of y.

A. 105º
B. 110º
C. 130º
D. 150º

12. A casting is made up of Copper and Zinc. If 65% of the casting is Zinc and there are 147g of Copper, what is the mass of the casting?

A. 320g
B. 420g
C. 520g
D. 620g

13. Given that P = {x: 1 ≤ x ≤ 6} and Q = {x: 2 < x < 10}, where x is an integer. Find n(P ∩ Q).

A. 4
B. 6
C. 8
D. 10

14. The sum of 6 and one-third of x is one more than twice of x. Find x.

A. x = 7
B. x = 5
C. x = 3
D. x = 2

15. Given that T= {x: -2 < x ≤ 9} where x is an integer. What is n(T)?

A. 9
B. 10
C. 11
D. 12

16. Solve the inequality: 3(x+1) ≤ 5(x+2) + 15

A. x ≥ -14
B. x ≤ -14
C. x ≤ -11
D. x ≥ -11

17. An empty rectangular tank is 250cm long and 120cm wide. If 180 litres of water is poured into

the tank, calculate the height of the water.

A. 6.0 cm

B. 5.5 cm

C. 5.0 cm

D. 4.5 cm

18. Given that $\frac{5^{n+3}}{25^{2n-3}} = 5^{\circ}$, find n.

A. n = 1

B. n = 2

C. n = 3

D. n = 5

19.

Number of pets	0	1	2	3	4
Number of students	8	4	5	10	3

The table shows the number of pets kept by 30 students in a class. If a student is picked at random from the class, what is the probability that he or she kept more than one pet?

A. $\frac{1}{5}$

B. $\frac{2}{5}$

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

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

20. Simplify: $2\sqrt{3} - \frac{6}{\sqrt{3}} + \frac{3}{\sqrt{27}}$

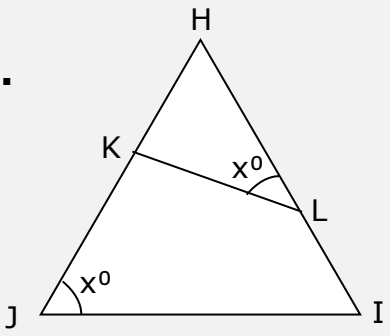
A. 1

B. $\frac{1}{3}\sqrt{3}$

C. $2\sqrt{3} - 5\frac{2}{3}$

D. $6\sqrt{3} - 17$

21.



In the diagram, triangles HKL and HIJ are similar. Which of the following ratios is equal to $\frac{LH}{JH}$

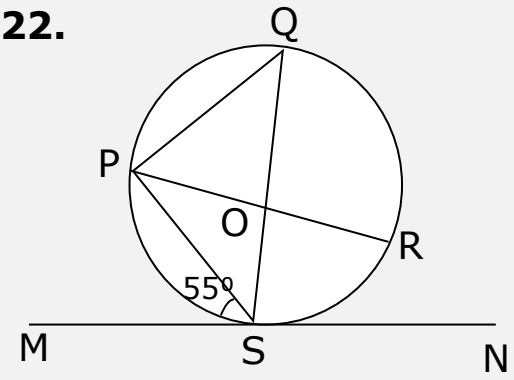
A. $\frac{KL}{JI}$

B. $\frac{HK}{JK}$

C. $\frac{JI}{KL}$

D. $\frac{HK}{LK}$

22.



In the diagram, the tangent MN makes an angle of 55⁰ with chord PS. If O is the centre of the circle, find ∠RPS.

A. 55⁰

B. 45⁰

C. 35⁰

D. 25⁰

23. Simplify: $\frac{2}{2+x}+\frac{2}{2-x}$

A. $\frac{4}{4-x^2}$

B. $\frac{8}{4-x^2}$

C. $\frac{4x}{4-x^2}$

D. $\frac{8-4x}{4-x^2}$

24. A rectangle has length xcm and width (x-1)cm. If the perimeter is 16cm, find the value of x.

A. $3\frac{1}{2}$ cm

B. 4 cm

C. $4\frac{1}{2}$ cm

D. 5 cm

25. Given that tan x = 1, where $0^0 \leq x \leq 90^0$, evaluate $\frac{1-\sin^2 x}{\cos x}$

A. $2\sqrt{2}$

B. $\sqrt{2}$

C. $\frac{\sqrt{2}}{2}$

D. $\frac{1}{2}$

26. If sin 3y = cos 2y and $0^0 \leq y \leq 90^0$, find the value of y.

A. 18⁰

B. 36⁰

C. 54⁰

D. 90⁰

27. The sum of the exterior angles of an n-sided convex polygon is half the sum of its interior angles. Find n.

A. 6

B. 8

C. 9

D. 12

28. What is the length of a rectangular garden whose perimeter is 32 cm and area 39 cm^2?

A. 25 cm

B. 18 cm

C. 13 cm

D. 9 cm

29. If $y = \frac{2(\sqrt{x^2 + m})}{3N}$, make x the subject of the formula.

A. $\frac{\sqrt{9y^2N^2 - 2m}}{2}$

B. $\frac{\sqrt{9y^2N^2 + 2m}}{2}$

C. $\frac{\sqrt{9y^2N^2 - 4m}}{2}$

D. $\frac{\sqrt{9y^2N^2 + 4m}}{2}$

30. The nth term of a sequence: -2, 4, -8, 16, ... is given by ____

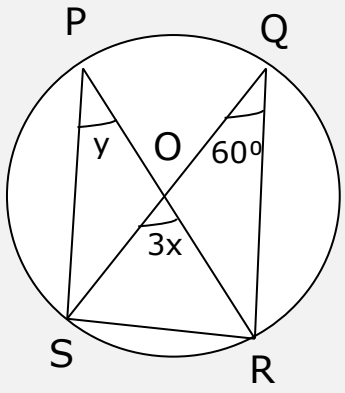
A. $T_n = 2^n$

B. $T_n = (-2)^n$

C. $T_n = (-2n)$

D. $T_n = n^2$

31.



In the diagram, O is the centre of the circle. ∠SQR = 60°, ∠SPR = y and ∠SOR = 3x. Find the value of (x+y).

A. 110°

B. 100°

C. 80°

D. 70°

32. How many times, correct to the nearest whole number, will a man run round a circular track of diameter 100m to cover a distance of 1000m?

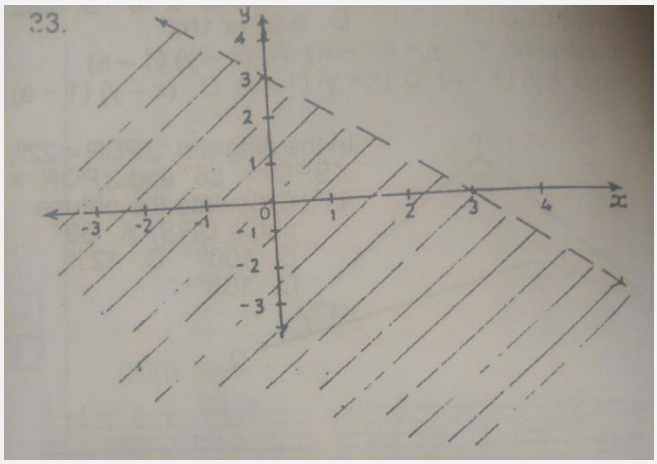
A. 3

B. 4

C. 5

D. 6

33.



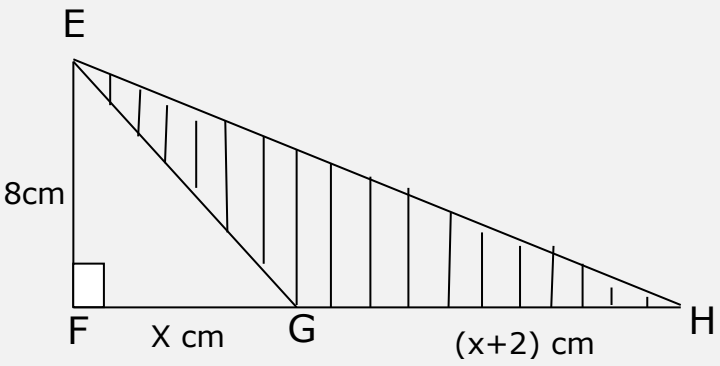
The shaded portion in the diagram is the solution of ____

A. $x + y \leq 3$

B. $x + y < 3$

C. $x + y > 3$

D. $x + y \geq 3$



34. In the diagram, /EF/ = 8 cm, /FG/ = x cm, /GH/ = (x+2) cm, ∠EFC = 90°. If the area of the shaded portion is 40 cm^2, find the area of ⊿EFG.

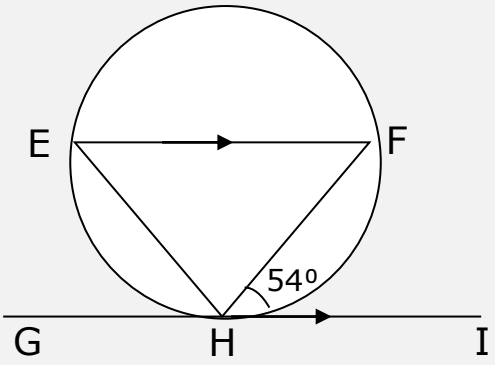
A. 128 cm^2

B. 72 cm^2

C. 64 cm^2

D. 32 cm^2

35.



In the diagram, GI is a tangent to the circle at H. If EFI/GI, calculate the size of ∠EHF.

A. 126°

B. 72°

C. 54°

D. 28°

36. Bala sold an article for ₦6,900.00 and made a profit of 15%. If he sold it for ₦6,600.00, he would make a ____

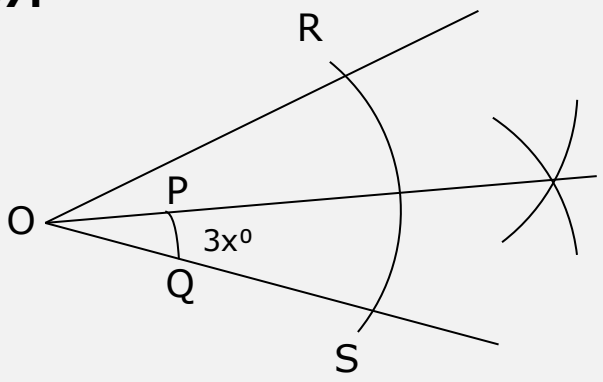
A. profit of 13%

B. loss of 12%

C. profit of 10%

D. loss of 5%

37.



In the diagram above, ∠ROS = 66° and ∠POQ = 3x. Some construction lines are shown. Calculate the value of x.

A. 10°

B. 11°

C. 22°

D. 30°

38. The mean age of R men in a club is 50 years. Two men, aged 55 and 63, left the club and the mean age reduced by 1 year. Find the value of R

A. 18

B. 20

C. 22

D. 28

The table is for the relation y = mx + c, where m and c are constants. Use it to answer questions 39 and 40

X	0	2	4	6
Y	1	2	3	4

39. What is the equation of the line described in the table?

A. y = 2x

B. y = x + 1

C. y = x

D. y = $\frac{1}{2}x + 1$

40. What is the value of x when y = 5

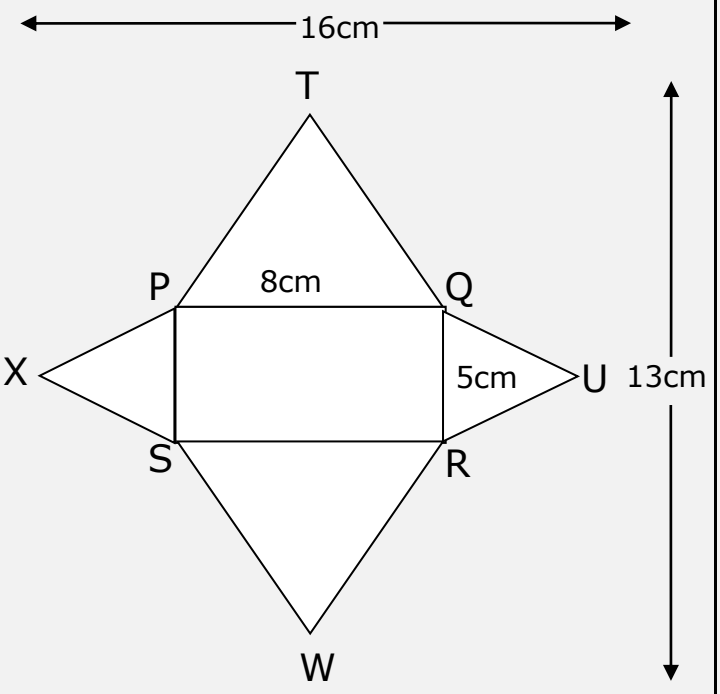
A. 8

B. 9

C. 10

D. 11

41.



The diagram is a net of a right rectangular pyramid. Calculate the total surface area.

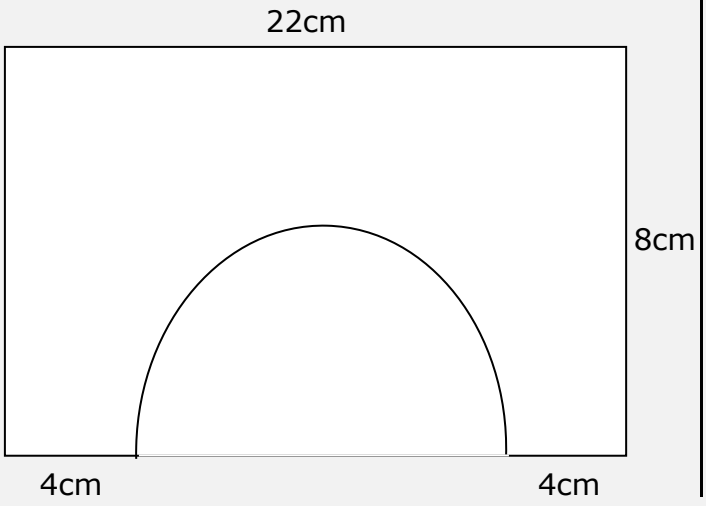
A. 208 cm^2

B. 112 cm^2

C. 92 cm^2

D. 76 cm^2

42.



The diagram shows a rectangular cardboard from which a semi circle is cut off. Calculate the area of the remaining part.

A. 44 cm^2

B. 99 cm^2

C. 154 cm^2

D. 165 cm^2

43. The subtraction below is in base seven. Find the missing number.

$$\begin{array}{rcccc} & 5 & 1 & 6 & 2 \\ - & \underline{2} & \underline{6} & \underline{4} & \underline{4} \\ & \underline{2} & \underline{*} & \underline{1} & \underline{5} \end{array}$$

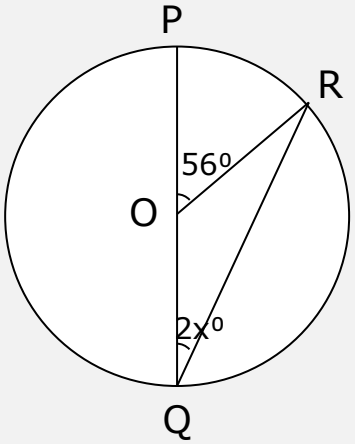
A. 2

B. 3

C. 4

D. 5

44.



In the diagram, O is the centre of the circle. Find the value of x.

A. 34

B. 39

C. 17

D. 14

45. If the sum of the roots of the equation (x – p)(2x + 1)=0 is 1, find the value of p.

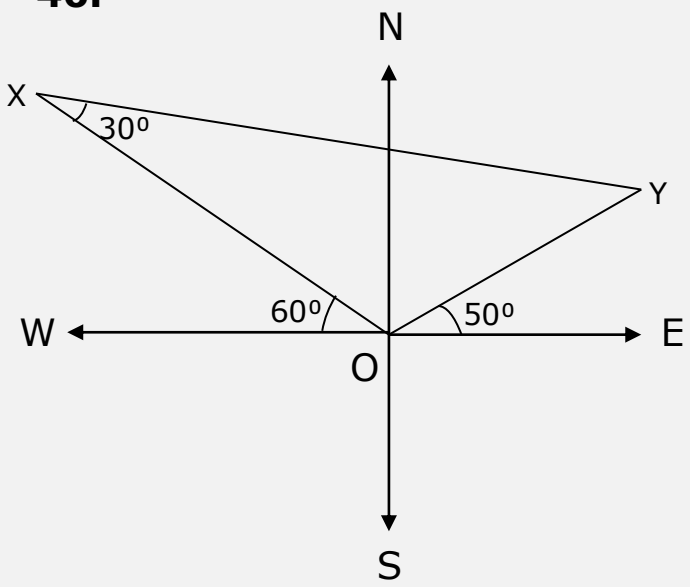
A. $1\frac{1}{2}$

B. $\frac{1}{2}$

C. $-\frac{1}{2}$

D. $-1\frac{1}{2}$

46.



In the diagram, ∠WOX = 60⁰, ∠YOE = 50⁰ and ∠OXY = 30⁰. What is the bearing of x from y?

A. 300⁰

B. 240⁰

C. 190⁰

D. 150⁰

47. In an athletics competition, the probability that an athlete wins a 100m race is $\frac{1}{8}$ and the probability that he wins in high jump is $\frac{1}{4}$. What is the probability that he wins only one of the events?

A. $\frac{3}{32}$

B. $\frac{3}{16}$

C. $\frac{7}{32}$

D. $\frac{5}{16}$

48. If $x^2 + kx + \frac{16}{9}$ is a perfect square, find the value of x.

A. $\frac{8}{3}$

B. $\frac{7}{3}$

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

D. $\frac{2}{3}$

49. If x kmh^{-1} = y ms^{-1}, then y = ____

A. $\frac{7}{18}$x

B. $\frac{11}{20}$x

C. $\frac{4}{15}x$

D. $\frac{5}{18}x$

50. The mean of the numbers 2, 5, 2x and 7 is less than or equal to 5. Find the range of the values of x.

A. $x \leq 3$

B. $x \geq 3$

C. $x < 3$

D. $x > 3$

WAEC MATHS OBJECTIVE QUESTIONS (PT.2)

1. If ₦112.00 exchanges for D14.94, calculate the value of D1.00 in naira.

A. 0.13
B. 7.49
C. 8.00
D. 13.00

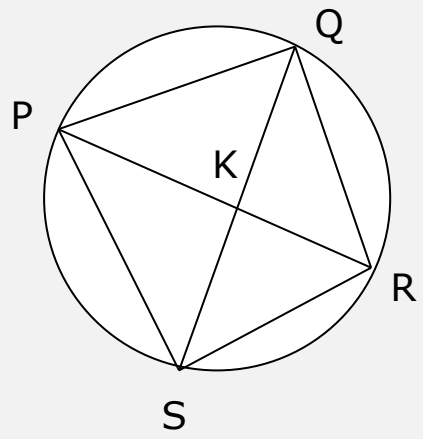
2. Solve for x in the equation $\frac{3}{5}(2x-1)=\frac{1}{4}(5x-3)$

A. 0
B. 1
C. 2
D. 3

3. Given that $\cos x° = \frac{1}{r}$, express tan x⁰ in terms of r.

A. $\frac{1}{\sqrt{r}}$
B. $\sqrt{r}$
C. $\sqrt{r^2+1}$
D. $\sqrt{r^2-1}$

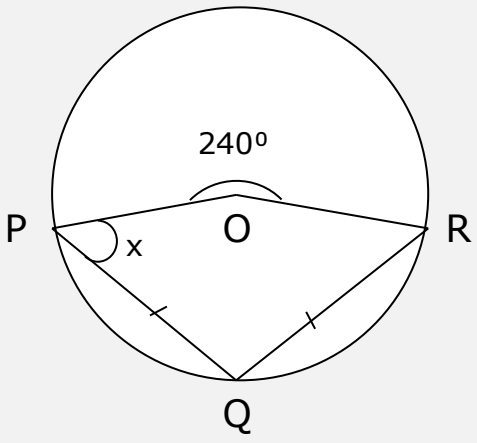
4.



The diagram shows a cyclic quadrilateral PQRS with its diagonals intersecting at K. Which of the following triangles is similar to triangle QKR?

A. ΔPQK
B. ΔPKS
C. ΔSKR
D. ΔPSR

5.



In the diagram, OP and OR are radii, /PQ/ = /QR/ and reflex

∠POR is 240°. Calculate the value of x.

A. 60°
B. 55°
C. 50°
D. 45°

6. If a number is chosen at random from the set (x: 4 ≤ x ≤ 15), find the probability that it is a multiple of 3 or a multiple of 4.

A. $\frac{1}{12}$
B. $\frac{5}{12}$
C. $\frac{1}{2}$
D. $\frac{11}{12}$

7. Solve the equations: 3x – 2y = 7, x + 2y = -3

A. x = 1, y = -2
B. x = 1, y = 3
C. x = 2, y = -1
D. x = 4, y = -3

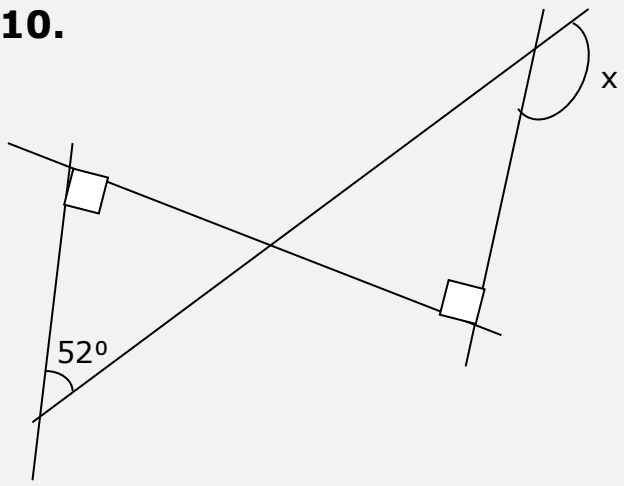
8. One of the factors of (mn – nq – n^2 + mq) is (m – n). The other factor is ___

A. (n – q)
B. (q – n)
C. (n + q)
D. (q – m)

9. A cylindrical container has a base radius of 14 cm and height of 18 cm. How many litres, correct to the nearest litre, of liquid can it hold? [Take π = $\frac{22}{7}$]

A. 11
B. 14
C. 16
D. 18

10.



Find the size of the angle marked x in the diagram.

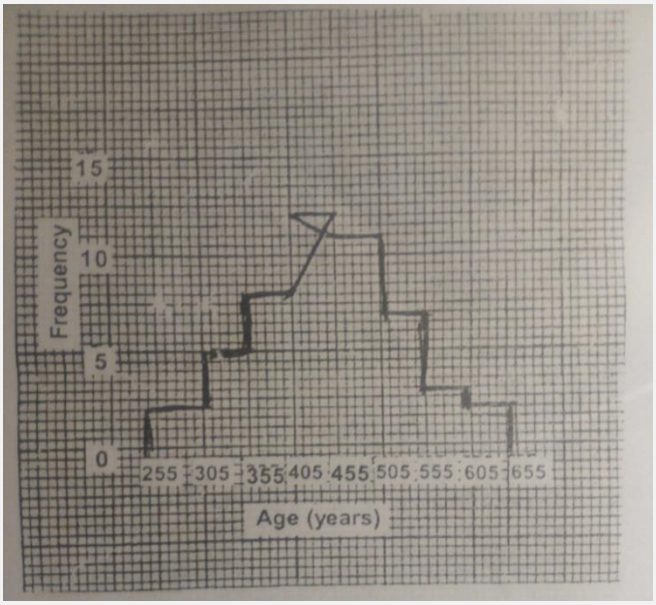
A. 108º
B. 112º
C. 128º
D. 142º

11. A regular polygon of *n* sides has each exterior angle equal to 45º. Find the value of n.

A. 6
B. 8
C. 12
D. 15

12. Esther was facing S 20ºW. She turned 90º in the clockwise direction. What direction is she facing?

A. N 70ºW
B. S 70ºE
C. N 20ºW
D. S 20ºE



The histogram shows the age distribution of members of a club. Use the information to answer questions 13 and 14.

13. How many members are in the club?

A. 52
B. 50
C. 48
D. 40

14. What is their modal age?

A. 44.5
B. 42.5
C. 41.5
D. 40.5

15. The cross section of a uniform prism is a right-angled triangle with sides 3 cm, 4 and 5 cm. If its length is 10 cm, calculate the total surface area.

A. 142 cm^2
B. 132 cm^2
C. 122 cm^2
D. 112 cm^2

16. Form the equation whose roots are x = $\frac{1}{2}$ and $-\frac{2}{3}$

A. $6x^2 - x + 2 = 0$
B. $6x^2 - x - 2 = 0$
C. $6x^2 + x + 2 = 0$
D. $6x^2 + x - 2 = 0$

17. Simplify: $\frac{\log\sqrt{27}}{\log\sqrt{81}}$

A. 3
B. 2
C. $\frac{3}{2}$
D. $\frac{3}{4}$

18. Which of these angles can be constructed using ruler and a pair of compasses only?

A. 115^0
B. 125^0
C. 135^0
D. 145^0

19. The perimeter of a sector of a circle of radius4 cm is (π + 8) cm. Calculate the angle of the sector.

A. 45^0
B. 60^0
C. 75^0
D. 90^0

20. The length of a piece of stick is 1.75 cm. A girl measured it as 1.80 cm. Find the percentage error.

A. $\frac{284}{7}\%$
B. $\frac{29}{7}\%$
C. 5%
D. $\frac{20}{7}\%$

21. What is the value of 3 in the number 42. 7531

A. $\frac{3}{10000}$

B. $\frac{3}{1000}$

C. $\frac{3}{100}$

D. $\frac{3}{10}$

22. The height of a cylinder is equal to its radius. If the volume is $0.216\pi m^3$, calculate the radius.

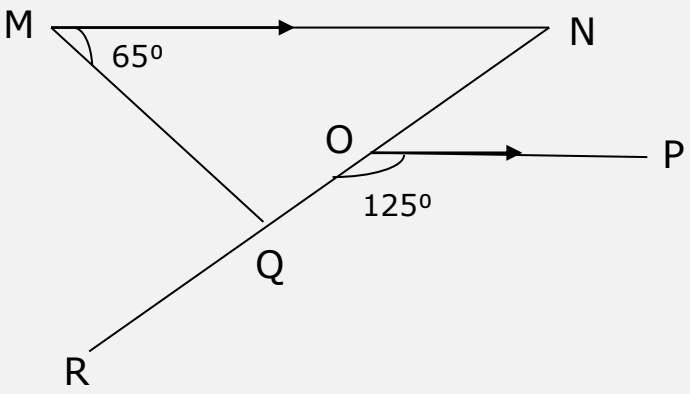
A. 0.46m

B. 0.60m

C. 0.87m

D. 1.00m

23.



In the diagram, MN//OP, ∠NMQ = 65° and ∠QOP = 125°. What is the size of ∠MQR

A. 110°

B. 120°

C. 130°

D. 160°

24. A circle is divided into two sectors in the ratio 3:7. If the radius of the circle is 7 cm, calculate the length of the minor arc of the circle.

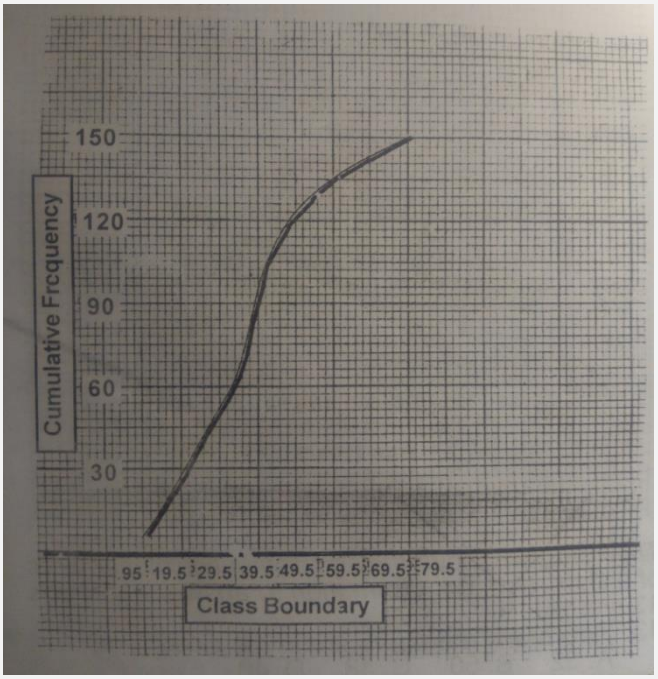
A. 18.85 cm

B. 13. 20 cm

C. 12.30 cm

D. 11.30 cm

Use the cumulative frequency curve to answer questions 25 and 26.



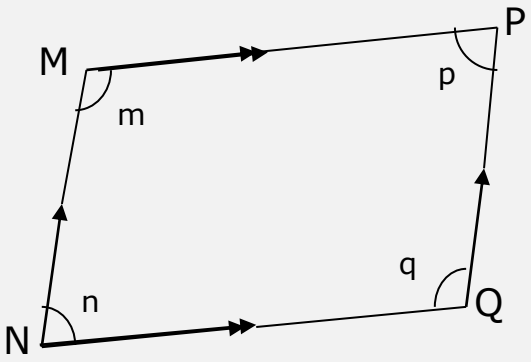
25. Estimate the median of the data represented on the graph.

A. 35.5
B. 36.5
C. 37.5
D. 38.5

26. What is the 80^{th} percentile?

A. 45.5
B. 46.5
C. 47.5
D. 48.5

27.



From the diagram, which of the following statement is true?

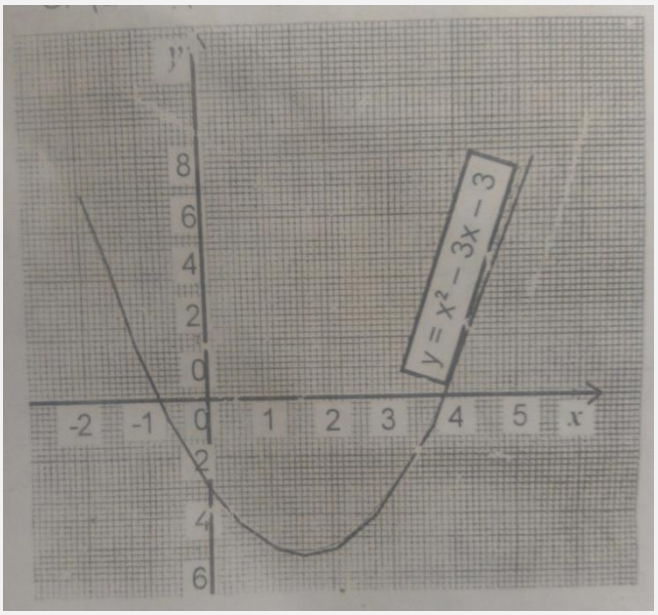
I. $m = q$
II. $n = q$
III. $n + p = 180^o$
IV. $p + m = 180^o$

A. I and III
B. I and IV
C. II and III
D. II and IV

28. Factorise the expression am + bn – an – bm.

A. (a – b)(m + n)
B. (a – b)(m – n)
C. (a + b)(m – n)
D. (a + b)(m + n)

The graph represents the relation: $y = x^2 - 3x - 3$. ***Use it to answer questions 29-30.***



29. Find the value of x for which $x^2 - 3x = 7$

A. -1.55, 4.55

B. 1.55, -4.55

C. -1.55, -4.55

D. 1.55, 4.55

30. What is the equation of the line of symmetry of the graph?

A. y = 0.5

B. x = 1.0

C. x = 1.5

D. y = 4.6

31. Simplify: $\frac{m}{n} + \frac{(m-1)}{5n} - \frac{(m-2)}{10n}$ where n ≠ 0.

A. $\frac{m-3}{10n}$

B. $\frac{11m}{10n}$

C. $\frac{m+1}{10n}$

D. $\frac{11m+4}{10n}$

32. If $\sqrt{72} + \sqrt{32} - 3\sqrt{18} = x\sqrt{8}$

A. 1

B. $\frac{3}{4}$

C. $\frac{1}{2}$

D. $\frac{1}{4}$

33. G varies directly as the square of H. If G is 4 when H is 3, find H when G = 100

A. 15

B. 25

C. 75

D. 225

34. Given that n(P) =19, n(P ∪ Q) = 38 and n(P ∩ Q) = 7, find n(Q).

A. 26

B. 31

C. 36

D. 50

35. What must be added to (2x – 3y) to get (x – 2y)

A. 5y – x

B. y – x

C. x – 5x

D. x – y

36. Simplify: $1\frac{3}{4} - \left(2\frac{1}{3} + 4\right)$

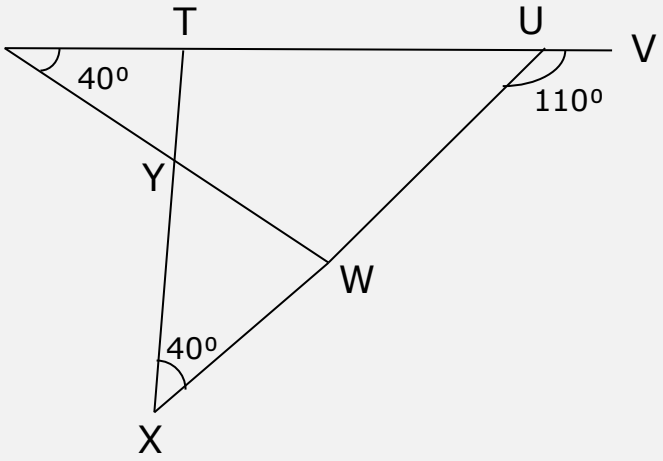
A. $3\frac{5}{12}$

B. $2\frac{7}{12}$

C. $-4\frac{7}{12}$

D. $-5\frac{5}{12}$

37.



In the diagram, STUV is a straight line. ∠TSY = ∠UXY = 40⁰ and ∠VUW = 110⁰. Calculate ∠TYW.

A. 150⁰

B. 140⁰

C. 130⁰

D. 120⁰

38. Given that $124_x = 7(14_x)$, find the value of x.

A. 12

B. 11

C. 9

D. 8

39. Find the smaller value of x that satisfies the equation: $x^2 + 7x + 10 = 0$

A. -5

B. -2

C. 2

D. 5

40. The perpendicular bisectors of the sides of an acute-angled triangle are drawn. Which of these statements is correct? They intersect ____

A. on one of the vertices

B. at a midpoint of a side

C. inside the triangle

D. outside the triangle

41. A rectangular garden measures 18.6m by 12.5m. Calculate, correct to three significant figures the area of the garden.

A. 230 m^2

B. 321 m^2

C. 232 m^2

D. 233 m^2

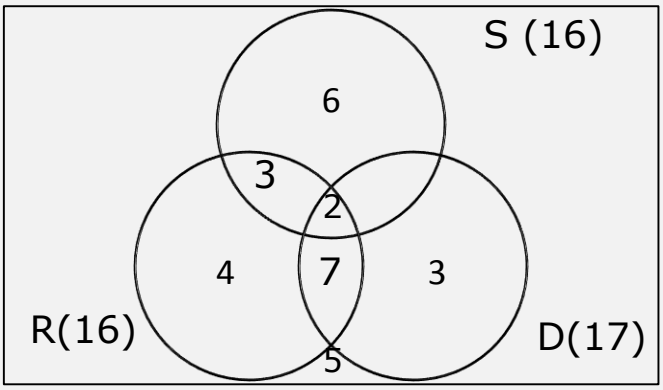
42. John pours 96 litres of red oil into a rectangular container with length 220 cm and breadth 40 cm. Calculate, correct to the nearest cm, the height of the oil in the container.

A. 11 cm
B. 18 cm
C. 21 cm^2
D. 34 cm

43. In a quiz competition, a student answers *n* questions correctly and was given D(n + 50) for each question correctly answered. If he gets D600.00 altogether, how many questions did he answer correctly?

A. 18
B. 15
C. 12
D. 10

44.



The Venn diagram shows the number of students in a class who like reading (R), dancing (D) and swimming (S). How many students like dancing and swimming?

A. 7
B. 9
C. 11
D. 13

45. A shopkeeper allows a discount of 15% on the marked price of a mobile phone. If a customer paid GH₵170.00 for a mobile phone, what was the marked price of the phone?

A. GH₵144.50
B. GH₵195.40

C. GH₵200.00

D. GH₵225.00

46. If $27^x = 9^y$, find the value of $\frac{x}{y}$

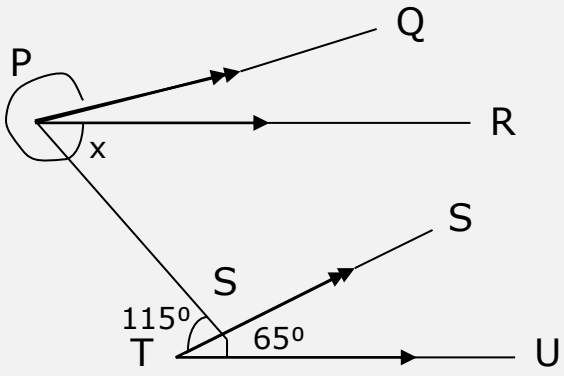
A. $\frac{1}{3}$

B. $\frac{2}{3}$

C. $1\frac{1}{2}$

D. 3

47.



In the diagram, PQ//TS, PR//TU, reflex angle QPS = 245°, angle PST = 115°, ∠STU = 65° and ∠RPS = x. Find the value of x.

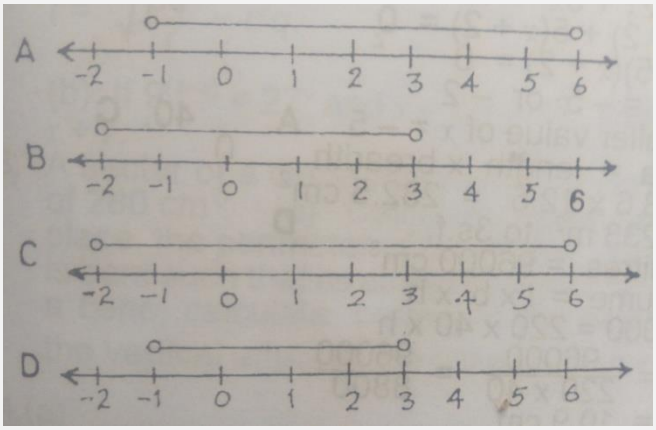
A. 80°

B. 70°

C. 60°

D. 50°

48. Illustrate the inequality -1 < 3x + 5 < 14 on a number line.



49. A boy looks through a window of a building and sees a mango fruit on the ground 50 m away from the foot of the building. If the window is 9 m from the ground, calculate, correct to the nearest degree, the angle of depression of the mango from the window.

A. 9°

B. 10°

C. 11°

D. 12°

50. If $E = \frac{MN}{S+N}$ and E = 75, M = 120, N = 5000. Find S.

A. 1000

B. 2000

C. 3000

D. 4000

WAEC MATHS OBJECTIVE QUESTIONS (PT.3)

1. Express 302.10495 correct to five significant figures.

A. 302.10
B. 302.11
C. 302.105
D. 302.1049

2. Simplify: $\frac{3\sqrt{5} \times 4\sqrt{6}}{2\sqrt{2} \times 3\sqrt{3}}$

A. $\sqrt{2}$
B. $\sqrt{5}$
C. $2\sqrt{2}$
D. $2\sqrt{5}$

3. In 1905, the enrolment of two schools X and Y were 1,050 and 1,190 respectively. Find the ratio of the enrolment for X and Y.

A. 50 : 11
B. 15 : 17
C. 13 : 55
D. 12 : 11

4. Convert 35_{10} to a number in base 2.

A. 1011
B. 10011
C. 100011
D. 11001

5. The nth term of a sequence is $T_n = 5 + (n - 1)^2$. Evaluate $T_4 - T_6$

A. 30
B. 16
C. -16
D. -30

6. Mr. Manu travelled from Accra to Pamfokrom a distance of 720 km in 8 hours. What will be his speed in m/s?

A. 25 m/s
B. 150 m/s
C. 250 m/s
D. 500 m/s

7. If ₦2,500.00 amounted to ₦3,500.00 in 4 years at simple interest, find the rate at which the interest was changed.

A. 5%

B. 7½%

C. 8%

D. 10%

8. Solve for x in the equation: $\frac{1}{x} + \frac{2}{3x} = \frac{1}{3}$

A. 5

B. 4

C. 3

D. 1

9. Simplify: $\frac{54k^2 - 6}{3k + 1}$

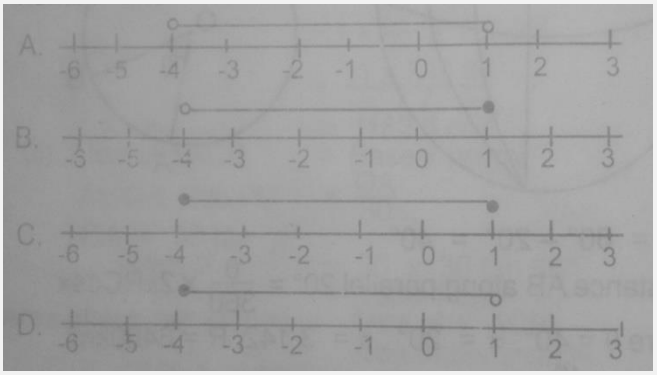
A. $6(1 - 3k^2)$

B. $6(3k^2 - 1)$

C. $6(3k - 1)$

D. $6(1 - 3k)$

10. Represent the inequality $-7 < 4x + 9 \leq 13$ on a number line.



11. Make p the subject of the relation: $q = \frac{3p}{r} + \frac{s}{2}$

A. $p = \frac{2q - rs}{6}$

B. $p = 2qr - sr - 3$

C. $p = \frac{2qr - s}{6}$

D. $p = \frac{2qr - rs}{6}$

12. If $x + y = 2y - x + 1 = 5$, find the value of x.

A. 3

B. 2

C. 1

D. -1

13. The sum of 12 and one third of *n* is one more than twice *n*. Express the statement in the form of an equation.

A. $12n - 6 = 0$

B. $3n - 12 = 0$

C. $2n - 35 = 0$

D. $5n - 33 = 0$

14. Solve the inequality: $\frac{-m}{2} - \frac{5}{4} \leq \frac{5m}{12} - \frac{7}{6}$

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

B. m $\leq \frac{5}{4}$

C. m $\geq -\frac{1}{11}$

D. m $\leq -\frac{1}{11}$

15. Two curved surface area of a cylindrical tin is 704 cm^2. If the radius of its base is 8 cm, find the height. [Take π = $\frac{22}{7}$]

A. 14 cm

B. 9 cm

C. 8 cm

D. 7 cm

16. The lengths of the minor or major arcs of a circle are 54 cm and 126 cm respectively. Calculate the angle of the major sector.

A. 306^0

B. 252^0

C. 246^0

D. 234^0

17. A sector of a circle which subtends 172^0 at the centre of the circle has a perimeter of 600 cm. Find, correct to the nearest cm, the radius of the circle. [Take π = $\frac{22}{7}$]

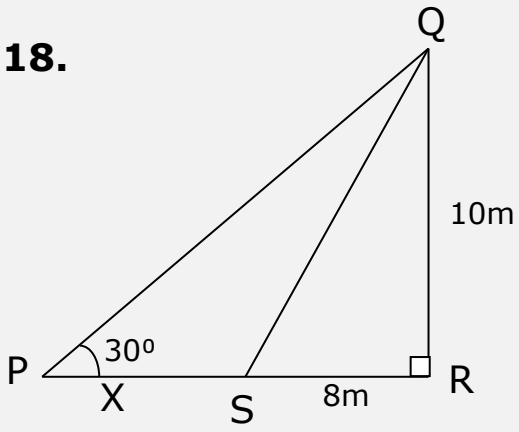
A. 120 cm

B. 116 cm

C. 107 cm

D. 100 cm

18.



In the diagram, /QR/ = 10 m, /SR/ = 8 m, ∠QPS = 90^0 and /PS/ = x. Find x.

A. 1.32 m

B. 6.32 m

C. 9.32 m

D. 17.32 m

19. In ΔXYZ, /XY/ = 8 cm, /YZ/ = 10 cm and /XZ/ = 6 cm. Which of these relations is true?

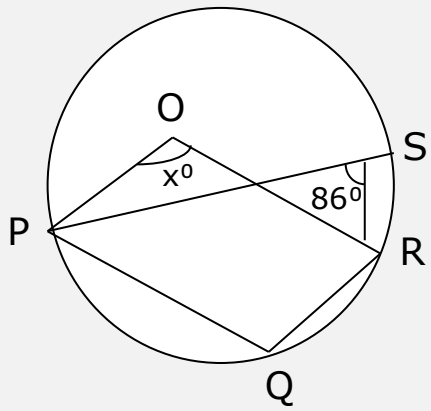
A. /XY/ + /YZ/ = /XZ/

B. /XY/ - /YZ/ = /XZ/

C. $/XZ/^2 = /YZ/^2 - /XY/^2$

D. $/YZ/^2 = /XZ/^2 - /XY/^2$

20.



In the diagram, O is the circle of the circle PQRS and ∠PSR = 86⁰. If ∠PQR = x⁰, find x.

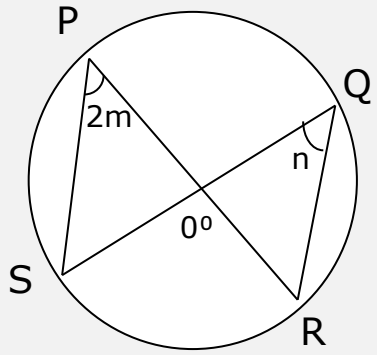
A. 274

B. 172

C. 129

D. 86

21.



The diagram is a circle centre O. If ∠SPR = 2m and ∠SQR = n, express m in terms of n.

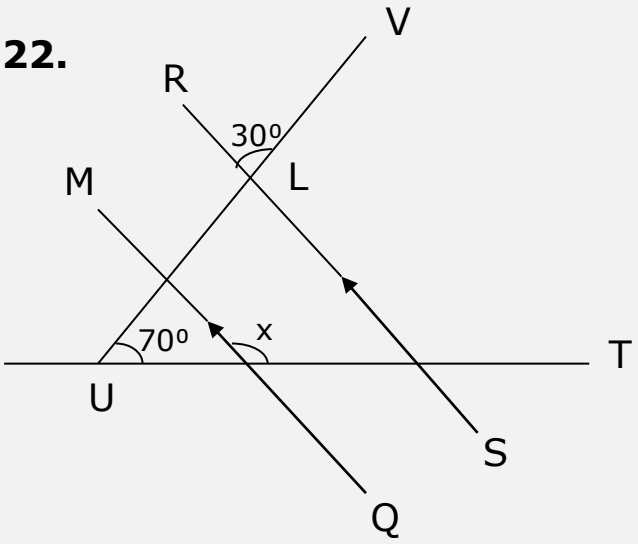
A. $m = \frac{n}{2}$

B. m = 2n

C. m = n – 2

D. m = n + 2

22.



In the diagram, MQ//RS, ∠TUV = 70⁰ and ∠RLV = 30⁰. Find the value of x.

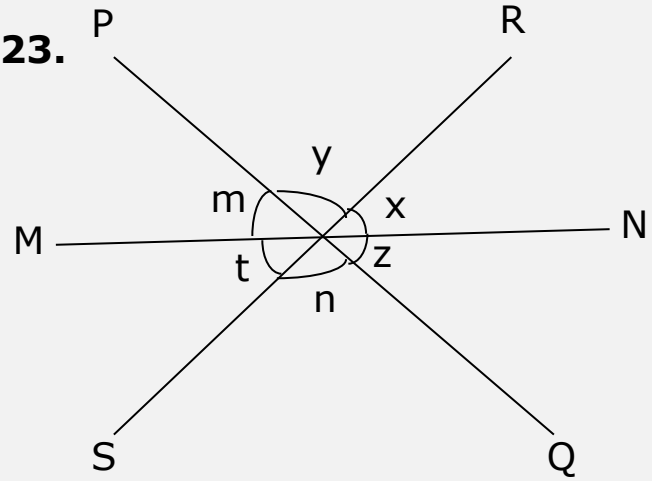
A. 150⁰

B. 110⁰

C. 100⁰

D. 95⁰

23.



In the diagram, MN, PQ and RS are three intersecting straight lines. Which of the following statement(s) is/are true?

I. $t = y$

II. $x + y + z + m = 180^0$

III. $x + m + n = 180^0$

IV. $x + n = m + z$

A. I and IV only

B. II only

C. III only

D. IV only

24. If cos $(x + 40)^0 = 0.0872$, what is the value of x?

A. 85^0

B. 75^0

C. 65^0

D. 45^0

25. A kite flies on a taut string of length 50 m inclined at an angle of 54^0 to the horizontal ground. The height of the kite above the ground is ____

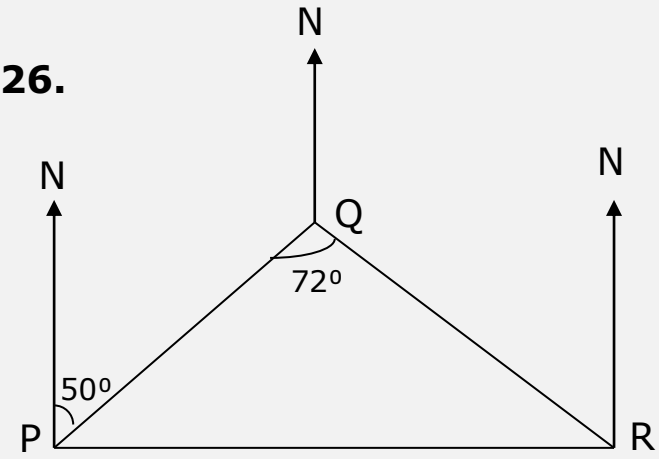
A. 50 tan 36^0

B. 50 sin 54^0

C. 50 tan 54^0

D. 50 sin 36^0

26.



The positions of three ships P, Q and R at sea are illustrated in the diagram. The arrows indicate the North direction. The bearing of Q from P is 050^0 and $\angle PQR = 72^0$. Calculate the bearing of R from Q.

A. 130^0

B. 158^0

C. 222^0

D. 252^0

27. Given that the mean of the scores 15, 21, 17, 26, 18 and 29 is 21, calculate the standard deviation of the scores.

A. $\sqrt{10}$

B. 4

C. 5

D. $\sqrt{30}$

28. A bag contain 4 red and 6 black balls of the same size. If the balls are shuffled briskly and two balls are drawn one after the other without replacement, find the probability of picking balls of different colours.

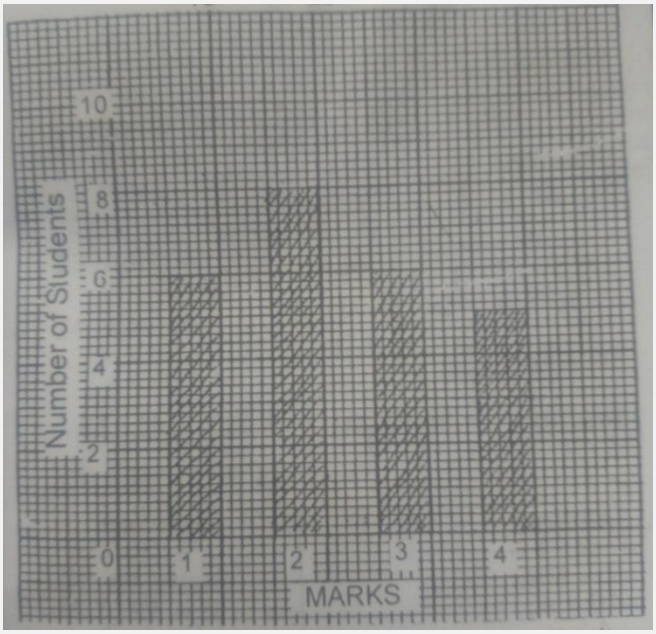
A. $\frac{8}{15}$

B. $\frac{13}{25}$

C. $\frac{11}{15}$

D. $\frac{13}{15}$

The bar chart shows the frequency distribution of marks scored by students in a class test. Use the bar chart to answer questions 29 to 31.



29. How many students are in the class?

A. 10

B. 24

C. 25

D. 30

30. Calculate the mean of the distribution.

A. 6.0

B. 3.0

C. 2.4

D. 1.8

31. What is the median of the distribution?

A. 2

B. 4

C. 6

D. 8

32. Which of these statements about $y = 8\sqrt{m}$ is correct?

A. $\log y = \log 8 \times \log \sqrt{m}$

B. $\log y = 3 \log 2 \times \frac{1}{2} \log m$

C. $\log y = 3 \log 2 - \frac{1}{2} \log m$

D. $\log y = 3 \log 2 + \frac{1}{2} \log m$

33. If $x + 0.4y = 3$ and $y = \frac{1}{2}x$, find the value of $(x + y)$

A. $1\frac{1}{4}$

B. $2\frac{1}{2}$

C. $3\frac{3}{4}$

D. 5

34. Express $3 - \left(\frac{x - y}{y}\right)$ as a single fraction.

A. $\frac{3xy}{y}$

B. $\frac{x - 4y}{y}$

C. $\frac{4y + x}{y}$

D. $\frac{4y - x}{y}$

35. Find the coefficient of m in the expansion of $\left(\frac{m}{2} - 1\frac{1}{2}\right)\left(m + \frac{2}{3}\right)$

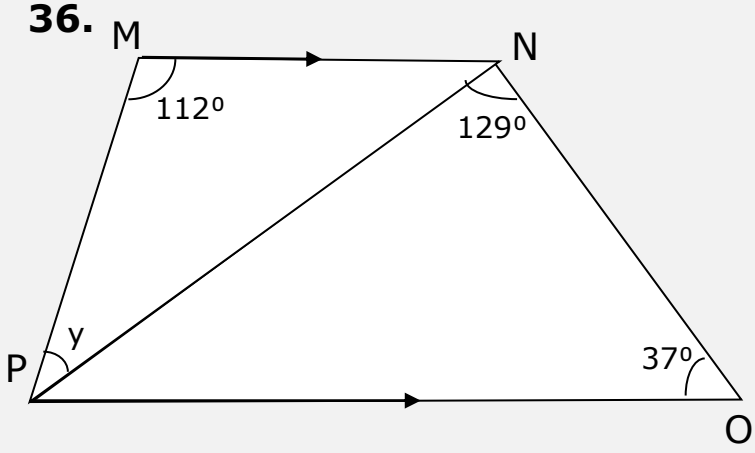
A. $-\frac{1}{6}$

B. $-\frac{1}{2}$

C. -1

D. $-1\frac{1}{6}$

36.



In the diagram, MN//PO, ∠PMN = 112⁰, ∠PNO = 129⁰, ∠NOP = 37⁰ and ∠MPN = y. Find the value of y.

A. 51⁰

B. 54⁰

C. 56⁰

D. 68⁰

37. If P = {prime factors of 210} and Q = {prime numbers less than 10}, find P ∩ Q.

A. {1, 2, 3}
B. {2, 3, 5}
C. {1, 3, 5, 7}
D. {2, 3, 5, 7}

38. Alfred spent $\frac{1}{4}$ of his money on food, $\frac{1}{3}$ on clothing and saved the rest. If he saved ₦72,000.00, how much did he spend on food?

A. ₦43,200.00
B. ₦43,000.00
C. ₦42,200.00
D. ₦40,000.00

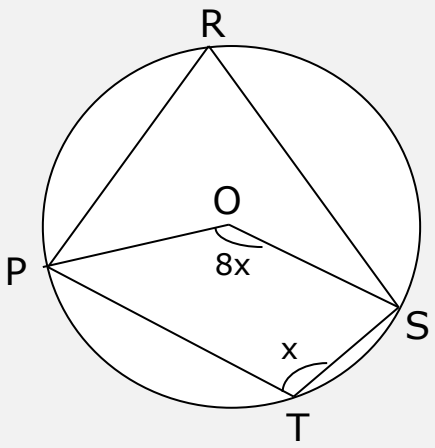
39. Solve: $\left(\frac{27}{125}\right)^{-\frac{1}{3}} \times \left(\frac{4}{9}\right)^{\frac{1}{2}}$

A. $\frac{10}{9}$
B. $\frac{9}{10}$
C. $\frac{2}{5}$
D. $\frac{12}{125}$

40. The sum of the interior angles of a regular polygon is 1800°. How many sides has the polygon?

A. 16
B. 12
C. 10
D. 8

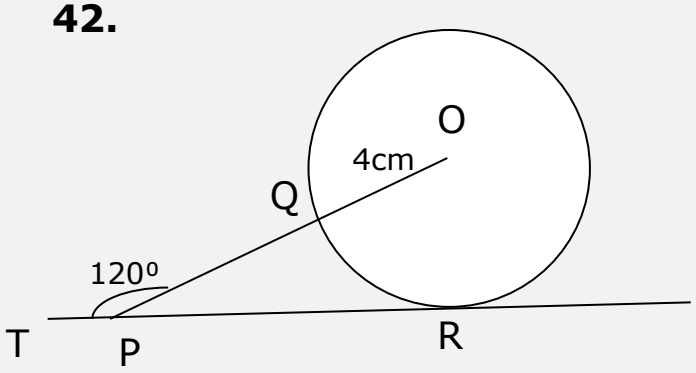
41.



The diagram is a circle with centre O. PRST are points on the circle. Find the value of ∠PRS.

A. 144°
B. 72°
C. 40°
D. 36°

42.



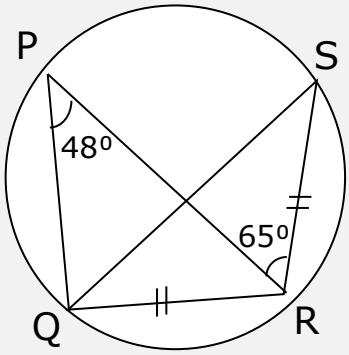
The diagram is a circle of radius /OQ/ = 4 cm. TR is a tangent to the circle at R. TPO = 120⁰, find /PQ/.

A. 2.32 cm
B. 1.84 cm
C. 0.62 cm
D. 0.26 cm

43. If x and y are variables and k is a constant, which of the following describes an inverse relationship between x and y?

A. $y = kx$
B. $y = \frac{k}{x}$
C. $y = k\sqrt{x}$
D. $y = x + k$

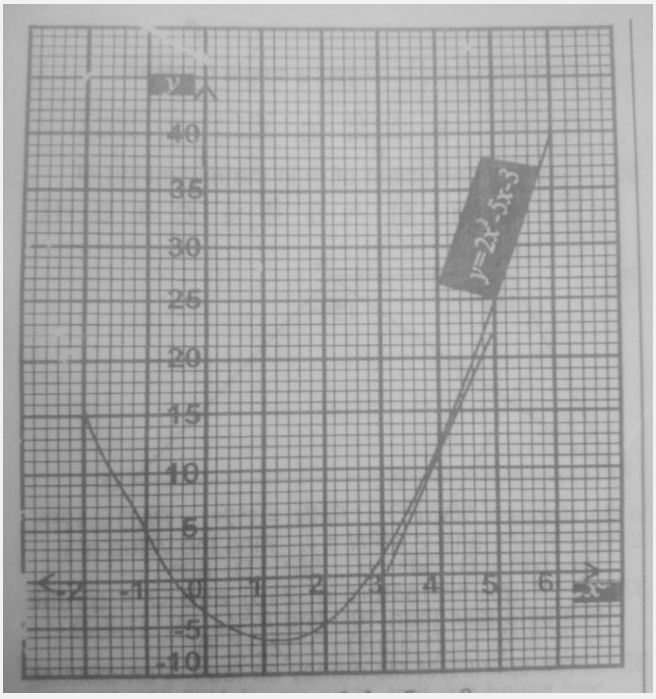
44.



In the diagram, /SR/ = /QR/, ∠SRP = 65⁰ and ∠RPQ = 48⁰, find ∠PRQ.

A. 65⁰
B. 45⁰
C. 25⁰
D. 19⁰

The graph is that of $y = 2x^2 - 5x - 3$. ***Use it to answer questions 45 and 46.***



45. For what value of x will y be negative?

A. $-\frac{1}{2} \leq x < 3$

B. $-\frac{1}{2} < x \leq 3$

C. $-\frac{1}{2} < x < 3$

D. $-\frac{1}{2} \leq x \leq 3$

46. What is the gradient of $y = 2x^2 - 5x - 3$ at the point $x = 4$

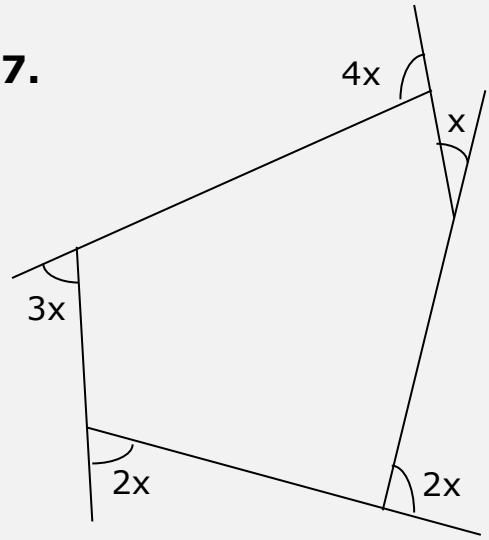
A. 11.1

B. 10.5

C. 10.3

D. 9.9

47.



The diagram is a polygon. Find the largest of its interior angles.

A. 30º

B. 100º

C. 120º

D. 150º

48. The volume of a cuboid is 54 cm^3. If the length, width and height of the cuboid are in the ratio 2:1:1 respectively, find its total surface area.

A. 108 cm^2

B. 90 cm^2

C. 80 cm^2

D. 75 cm^2

49. A side and a diagonal of a rhombus are 10 cm and 12 cm respectively. Find the area.

A. 20 cm^2

B. 24 cm^2

C. 48 cm^2

D. 96 cm^2

50. Factorize completely: $32x^2y - 48x^3y^3$.

A. $16y^2y(2 - 3xy^2)$

B. $8xy\ (4x - 6x^2y^2)$

C. $8x^2y\ (4 - 6xy^2)$

D. $16xy\ (2x - 3x^2y^2)$

WAEC MATHS OBJECTIVE QUESTIONS (PT.4)

1. Multiply 2.7×10^{-4} by 6.3×10^{6} and leave your answer in standard form.

A. 1.7×10^{3}
B. 1.70×10^{3}
C. 1.701×10^{3}
D. 17.01×10^{3}

2. If $9^{(2-x)} = 3$. Find x.

A. 1
B. $\frac{3}{2}$
C. 2
D. $\frac{5}{2}$

3. In what number base is the addition 465 + 24 + 225 = 1050

A. ten
B. nine
C. eight
D. seven

4. Simplify: $\frac{1\frac{7}{8} \times 2\frac{2}{5}}{6\frac{3}{4} \div \frac{3}{4}}$

A. 9
B. $4\frac{1}{2}$
C. 2
D. $\frac{1}{2}$

5. If $U_n = n(n^2 + 1)$, evaluate $U_5 - U_4$

A. 18
B. 36
C. 62
D. 80

6. If $\sqrt{50} - K\sqrt{8} = \frac{2}{\sqrt{2}}$, find K.

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

7. A sales boy gave a change of ₦68 instead of ₦72. Calculate his percentage error.

A. 4%
B. $5\frac{5}{9}\%$
C. $5\frac{15}{17}\%$
D. 7%

8. Four oranges sell for ₦x and three mangoes sell for ₦y. Olu bought 24 oranges and 12 mangoes. How much did he pay in terms of x and y?

A. ₦(4x + 6y)

B. ₦(6x + 4y)

C. ₦(24x + 12y)

D. ₦(12x + 24y)

9. Simplify: $\frac{x^2 - y^2}{(x + y)^2} + \frac{(x - y)^2}{(3x + 3y)}$

A. $\frac{x - y}{3}$

B. x + y

C. $\frac{3}{x - y}$

D. x – y

10. Solve the inequality: $\frac{2x - 5}{2} < (2 - x)$

A. x > 0

B. $x < \frac{1}{4}$

C. $x > 2\frac{1}{2}$

D. $x < 2\frac{1}{4}$

11. If x = 64 and y = 27, calculate: $\frac{x^{\frac{1}{2}} - y^{\frac{1}{3}}}{y - x^{\frac{2}{3}}}$

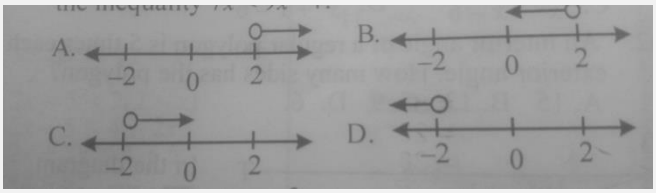
A. $2\frac{1}{5}$

B. 1

C. $\frac{5}{11}$

D. $\frac{11}{43}$

12. Which of the following lines represent the solution of the inequality 7x < 9x – 4



13. If $\frac{1}{2}x + 2y = 3$ and $\frac{3}{2}x - 2y = 1$, find (x + y)

A. 3

B. 2

C. 1

D. 0

14. Given that $p^{\frac{1}{3}} = \frac{\sqrt[3]{q}}{r}$ make q the subject of the equation.

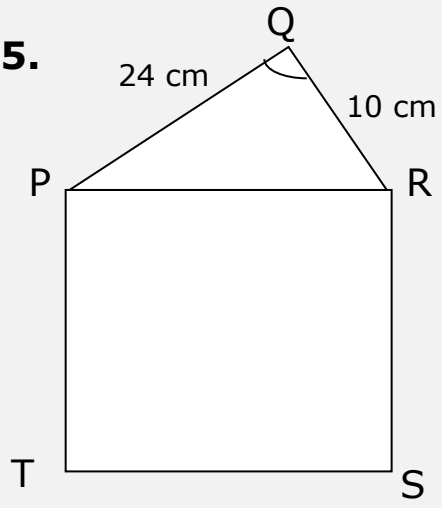
A. $q = p\sqrt{r}$

B. $q = p^3r$

C. $q = pr^3$

D. $q = pr^{\frac{1}{3}}$

15.



In the diagram, PRST is a square. If /PQ/ = 24 cm, /QR/ = 10 cm and ∠PQR is 90°; find the perimeter of the polygon PQRST.

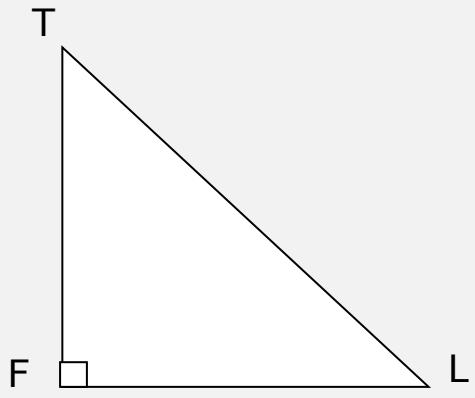
A. 112 cm

B. 98 cm

C. 86 cm

D. 84 cm

16.



In the diagram, the height of a flagpole (TF) and the length of its shadow are in the ratio 6:8. Using K as a constant of proportionality, find the shortest distance between T and L.

A. 7K units

B. 10K units

C. 12K units

D. 14K units

17. A chord is 2cm from the centre of the circle. If the radius of the circle is 5cm, find the length of the chord.

A. $2\sqrt{21}$cm

B. $\sqrt{42}$cm

C. $2\sqrt{19}$cm

D. $\sqrt{21}$cm

18. A cube and a cuboid have the same base area. The volume of the cube is 64 cm^3 while that of the cuboid is 80 cm^3

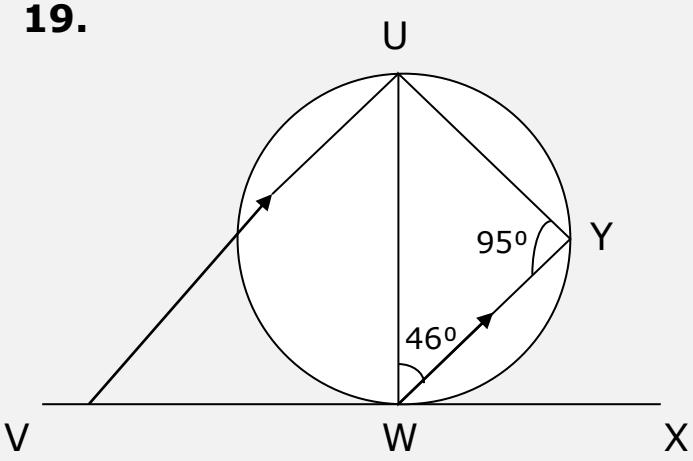
A. 2 cm

B. 3 cm

C. 5 cm

D. 6 cm

19.



In the diagram, VX is a tangent to the circle UYW at W. If WY//UV, ∠UYW = 95⁰ and ∠UWY = 46⁰, find ∠UVW.

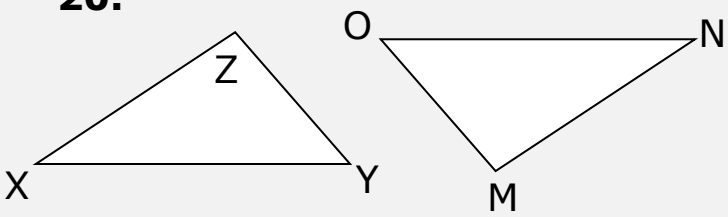
A. 51⁰

B. 49⁰

C. 39⁰

D. 34⁰

20.



In the diagrams, /XZ/ = /MN/, /ZY/ = /MO/ and /XY/ = /NO/. Which of the following statements is true?

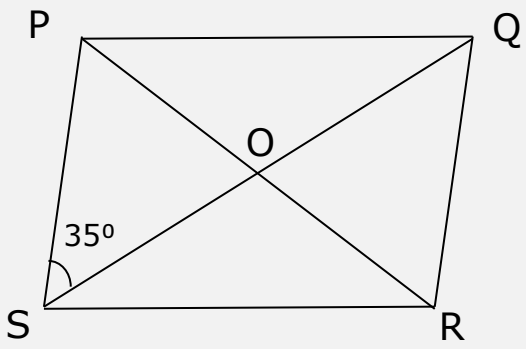
A. ΔZYX ≡ ΔOMN

B. ΔYZX ≡ ΔNOM

C. ΔZXY ≡ ΔMON

D. ΔXYZ ≡ ΔNOM

21.



In the diagram, PQRS is a rhombus and ∠PSQ = 35⁰. Calculate the size of ∠PRQ.

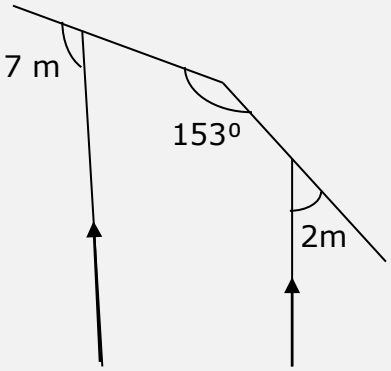
A. 65⁰

B. 55⁰

C. 45⁰

D. 35⁰

22.



Find the value of m in the diagram.

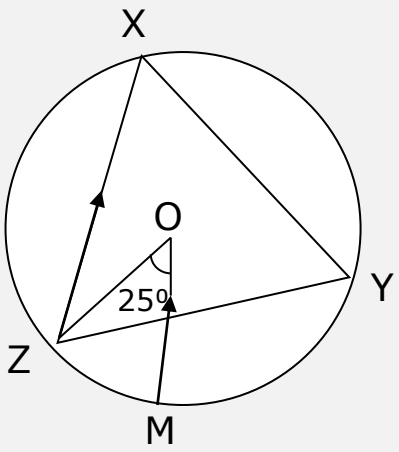
A. 34º

B. 27º

C. 23º

D. 17º

23.



In the diagram, O is the centre of the circle, OM//XZ and ∠ZOM = 25º. Calculate ∠XYZ.

A. 50º

B. 55º

C. 60º

D. 65º

24. If sin x = $\frac{5}{13}$ and 0º ≤ x ≤ 90º, find the value of (cos x – tan x).

A. $\frac{7}{13}$

B. $\frac{12}{13}$

C. $\frac{79}{156}$

D. $\frac{209}{156}$

25. An object is 6 m away from the base of a mast. The angle of depression of the object from the top of the mast is 50º. Find, correct to 2 decimal places, the height of the mast.

A. 8.60 m

B. 7.51 m

C. 7.15 m

D. 1.19 m

26. The bearing of Y from X is 060º and the bearing of Z from Y is 060º. Find the bearing of X from Z.

A. 300º

B. 240º

C. 180º

D. 120º

27. Which of the following is not a probability of Mary scoring 85% in a Mathematics test?

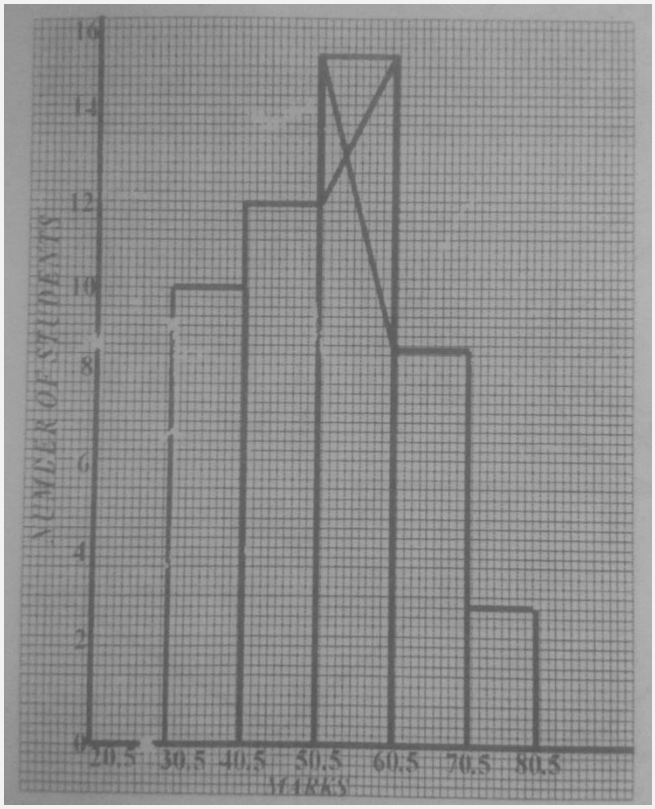
A. 0.15

B. 0.57

C. 0.94

D. 1.01

Use the histogram to answer questions 28 and 29.



28. Estimate the mode of the distribution.

A. 51.5

B. 52.5

C. 53.3

D. 54.5

29. What is the median class?

A. 60.5 – 70.5

B. 50.5 – 60.5

C. 40.5 – 50.5

D. 30.5 – 40.5

30. If $2\log_x \left(3\frac{3}{8}\right) = 6$, find the value of x.

A. $\frac{3}{2}$

B. $\frac{4}{3}$

C. $\frac{2}{3}$

D. $\frac{1}{2}$

31. If P = {y: 2y ≥ 6} and Q = {y: y – 3 ≤ 4}, where y is an integer, find P ∩ Q.

A. {3, 4}

B. {3, 7}

C. {3, 4, 5, 6, 7}

D. {4, 5, 6}

32. Find the values of k in the equation $6k^2 = 5k + 6$

A. $\left\{-\frac{2}{3}, -\frac{3}{2}\right\}$

B. $\left\{-\frac{2}{3}, \frac{3}{2}\right\}$

C. $\left\{\frac{2}{3}, -\frac{3}{2}\right\}$

D. $\left\{\frac{2}{3}, \frac{3}{2}\right\}$

33. If y varies directly as the square root of (x + 1) and y = 6 when x = 3, find x when y = 9.

A. 8

B. 7

C. 6

D. 5

34. The graph of the relation $y = x^2 + 2x + k$ passes through the point (2, 0). Find the value of k.

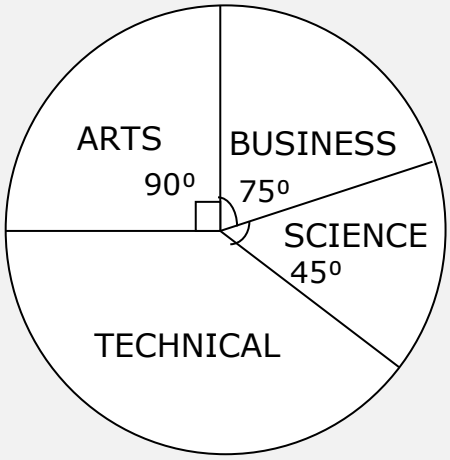
A. 0

B. -2

C. -4

D. -8

The pie chart shows the distribution of 600 Mathematics textbooks for Arts, Business, Science and Technical classes.



Use it to answer questions 35-36

35. How many textbooks are for technical classes?

A. 100

B. 150

C. 200

D. 250

36. What percentage of the total number of textbooks belongs to Science?

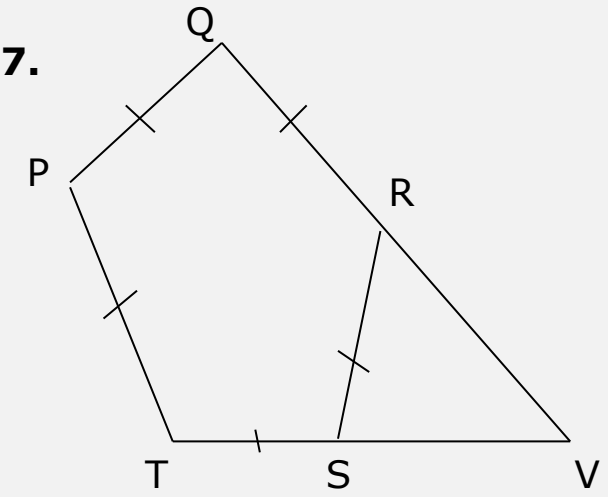
A. $12\frac{1}{2}\%$

B. $20\frac{5}{6}\%$

C. 25%

D. $41\frac{2}{3}\%$

37.



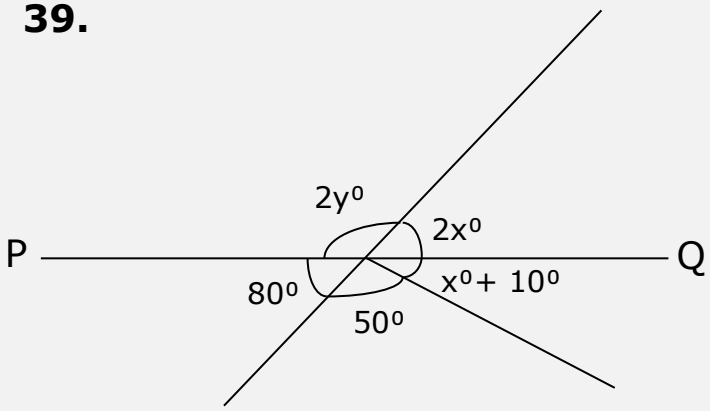
In the diagram, PQRST is a regular polygon with sides QR and TS produced to meet at V. Find the size of ∠RVS.

A. 36⁰
B. 54⁰
C. 60⁰
D. 72⁰

38. What is the locus of the point X which moves relative to two fixed points P and M on a plane such that ∠PXM = 30⁰

A. The bisector of the straight line joining P and M
B. The arc of a circle with PM as a chord
C. The bisector of angle PXM
D. A circle centre X and radius PM

39.



In the diagram, PQ is a straight line. Calculate the value of the angle labelled 2y.

A. 130⁰
B. 120⁰
C. 110⁰
D. 100⁰

40. When a number is subtracted from 2, the result equals 4 less than one-fifth of the number. Find the number.

A. 11
B. $\frac{15}{2}$
C. 5
D. $\frac{5}{2}$

41. Express $\frac{2}{x+3} - \frac{1}{x-2}$ as a simple fraction.

A. $\frac{x-7}{x^2+x-6}$

B. $\frac{x-1}{x^2+x-6}$

C. $\frac{x-2}{x^2+x-6}$

D. $\frac{x+7}{x^2+x-6}$

42. An interior angle of a regular polygon is 5 times each exterior angle. How many sides has the polygon?

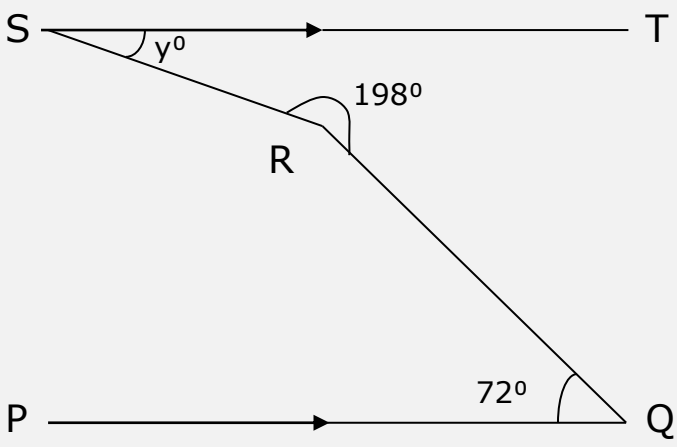
A. 15

B. 12

C. 9

D. 6

43.



In the diagram, ST//PQ, reflex angle SRQ = 198⁰ and ∠RQP = 72⁰. Find the value of y.

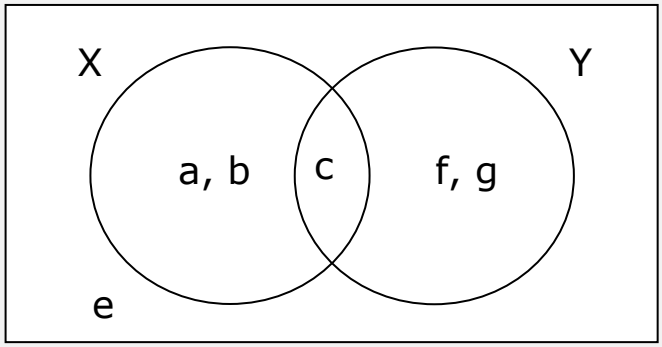
A. 18⁰

B. 54⁰

C. 92⁰

D. 108⁰

44.



Using the Venn diagram, find n(X∩Y').

A. 2

B. 3

C. 4

D. 6

45. Given that $P = x^2 + 4x - 2$, $Q = 2x - 1$ and $Q - P = 2$, find x.

A. -2

B. -1

C. 1

D. 2

46. A pyramid has a rectangular base with dimensions 12 m by 8m. If its height is 14 m, calculate the volume.

A. 344 m^3
B. 448 m^3
C. 632 m^3
D. 840 m^3

47. The slant height of a cone is 5 cm and the radius of its base is 3cm. Find, correct to the nearest whole number, the volume of the cone. [Take π = $\frac{22}{7}$]

A. 48 cm^3
B. 47 cm^3
C. 38 cm^3
D. 13 cm^3

48. The distance between two towns is 50 km. It is represented on a map by 5 cm. Find the scale used.

A. 1 : 1,000,000
B. 1 : 500,000
C. 1 : 100,000
D. 1 : 10,000

49. Given that $(x + 2)(x^2 - 3x + 2) + 2(x + 2)(x - 1) = (x + 2)M$. Find M.

A. $(x + 2)^2$
B. $x(x + 2)$
C. $x^2 + 2$
D. $x^2 + x$

50. An open cone with base radius 28 cm and perpendicular height 96 cm was stretched to form a sector of a circle. Calculate the area of the sector. [Take π=$\frac{22}{7}$]

A. 8800 cm^2
B. 8448 cm^2
C. 4400 cm^2
D. 4224 cm^2

WAEC MATHS OBJECTIVE QUESTIONS (PT.5)

1. Simplify: $10\frac{2}{5} - 6\frac{2}{3} + 3$

A. $6\frac{4}{15}$

B. $6\frac{11}{15}$

C. $7\frac{4}{15}$

D. $7\frac{11}{15}$

2. If $23_x = 32_5$, find the value of x.

A. 7

B. 6

C. 5

D. 4

3. The volume of a cube is 512 cm^3. Find the length of its sides.

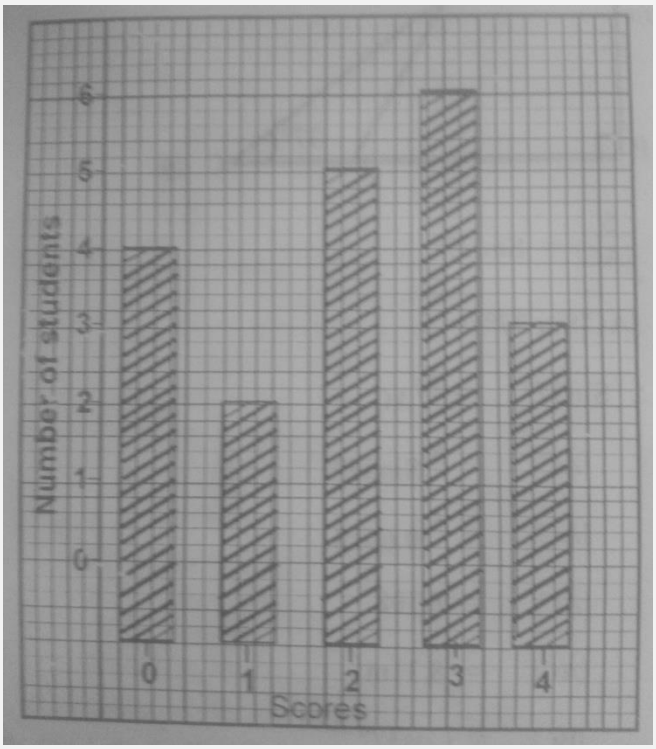
A. 6 cm

B. 7 cm

C. 8 cm

D. 9 cm

The chart below shows the scores of some students in a test. Use it to answer questions 4 and 5.



4. How many students took the test?

A. 18

B. 19

C. 20

D. 22

5. If one student is selected at random, find the probability that he/she scored, at most, 2 marks.

A. $\frac{11}{18}$

B. $\frac{11}{20}$

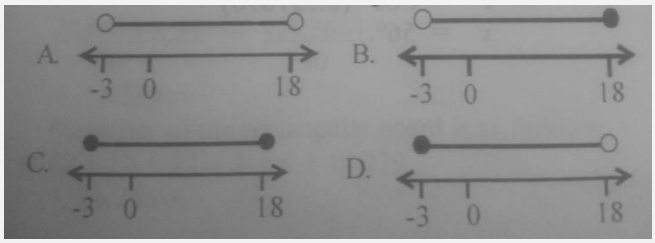
C. $\frac{7}{22}$

D. $\frac{5}{19}$

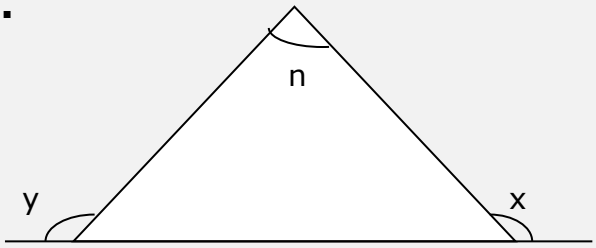
6. Simplify: $\sqrt{12}(\sqrt{48}-\sqrt{3})$

A. 18
B. 16
C. 14
D. 12

7. Which of the following number lines represents the solution to the inequality: -9 ≤ $\frac{2}{3}x$ - 7 < 5



8.



In the diagram, the value of x + y = 220º. Find the value of n.

A. 20º
B. 40º
C. 60º
D. 80º

9. Given that x > y and 3 < y, which of the following is/are true?

I. $y > 3$
II. $x < 3$
III. $x > y > 3$

A. I only
B. I and II only
C. I and III only
D. I, II and III only

10. Three quarters of a number added to two and half of that number gives 13. Find the missing number.

A. 4
B. 5
C. 6
D. 7

11. If X = {0, 2, 4, 6} and Y ={1, 2, 3, 4} and Z = {1, 3} are subsets of U = {x: 0 ≤ x ≤ 6}, find X ∩ (Y ∪ Z).

A. {0, 2, 6}

B. {1, 3}

C. {0, 6}

D. { }

12. Find the truth set of the equation $x^2 = 3(2x + 9)$

A. {x: x = 3, x = 9}

B. {x: x = -3, x = -9}

C. {x: x = 3, x = -9}

D. {x: x = -3, x = 9}

13. The coordinate points P and Q are (4,3) and (2, -1) respectively. Find the shortest distance between P and Q.

A. $10\sqrt{2}$

B. $4\sqrt{5}$

C. $5\sqrt{2}$

D. $2\sqrt{5}$

14. Make u the subject of the formula, $E = \frac{m}{2g}(v^2 - u^2)$

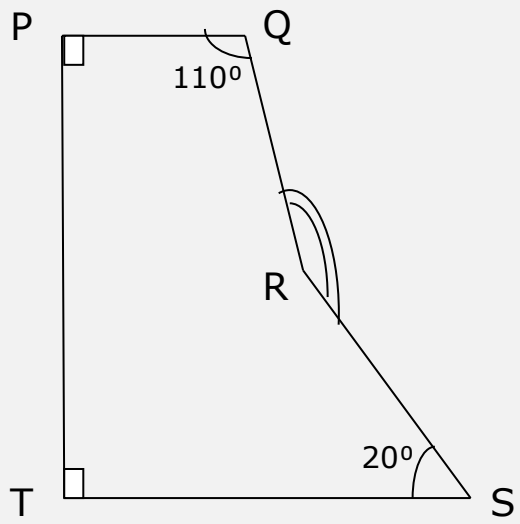
A. $u = \frac{\sqrt{v^2 - 2Eg}}{m}$

B. $u = \frac{\sqrt{v^2 - 2Eg}}{m \quad 4}$

C. $u = \frac{\sqrt{v - 2Eg}}{m}$

D. $u = \frac{\sqrt{2v^2Eg}}{m}$

15.



In the diagram, ∠QPT = ∠PTS = 90°, ∠PQR = 110° and ∠TSR = 20°. Find the size of the obtuse angle QRS.

A. 140°

B. 130°

C. 120°

D. 110°

16. If x varies inversely as y and y varies directly as z, what is the relationship between x and z?

A. $x \propto z$

B. $x \propto \frac{1}{z}$

C. $x \propto z^2$

D. $x \propto z^{\frac{1}{2}}$

17. Find the gradient of the line joining the points (2, -3) and (2,5).

A. 0

B. 1

C. 2

D. undefined

18. If (x – a) is a factor of bx – ax + x^2 – ab. Find the other factor.

A. (x + b)

B. (x – b)

C. (a + b)

D. (a – b)

19.

Height	2	3	4	5	6
Frequency	2	4	5	3	1

The table shows the distribution of the height of plants in a nursery. Calculate the mean height of the plants.

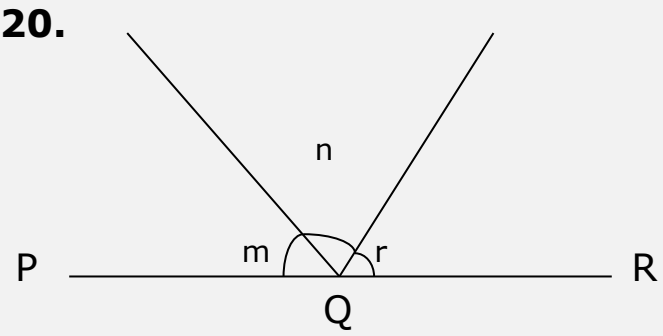
A. 3.8

B. 3.0

C. 2.8

D. 2.3

20.



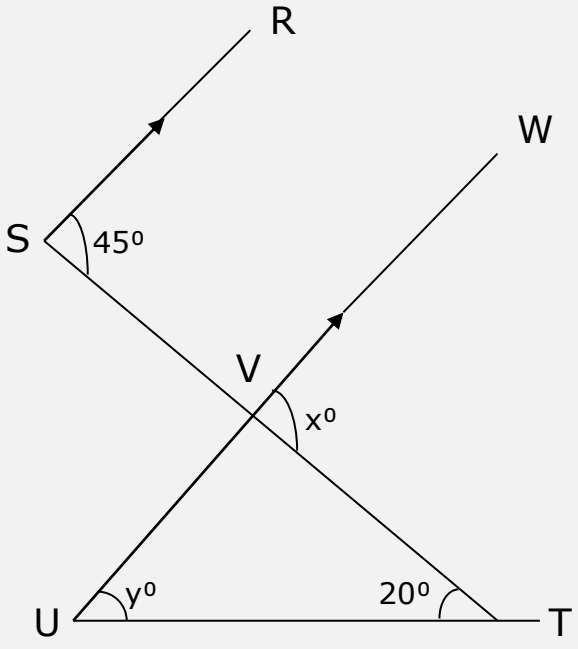
In the diagram, PQR is a straight line, (m + n) = 120º and (n + r) = 100º. Find (m + r).

A. 110º

B. 120º

C. 140º

D. 160º



In the diagram, SR is parallel to UW, ∠WVT = x⁰, ∠VUT = y⁰, ∠RSV = 45⁰ and ∠VTU = 20⁰.

Use the diagram to answer questions 21 and 22.

21. Find the value of x.

A. 20
B. 45
C. 65
D. 135

22. Calculate the value of y.

A. 20
B. 25
C. 45
D. 65

23. The area of a sector of a circle within the diameter 12 cm is 66 cm^2. If the sector is folded to form a cone, calculate the radius of the base of the cone. [Take $\pi=\frac{22}{7}$]

A. 3.0 cm
B. 3.5 cm
C. 7.0 cm
D. 7.5 cm

24. A chord, 7 cm long, is drawn in a circle with radius 3.7 cm. Calculate the distance of the chord from the centre of the circle.

A. 0.7 cm
B. 1.2 cm
C. 2.0 cm
D. 2.5 cm

25. Which of the following is a measure of dispersion?

A. range
B. percentile
C. median
D. quartile

26. A box contains 13 currency notes, all of which are either ₦50 or ₦20 notes. The total value of the currency notes is ₦530. How many ₦50 notes are in the box?

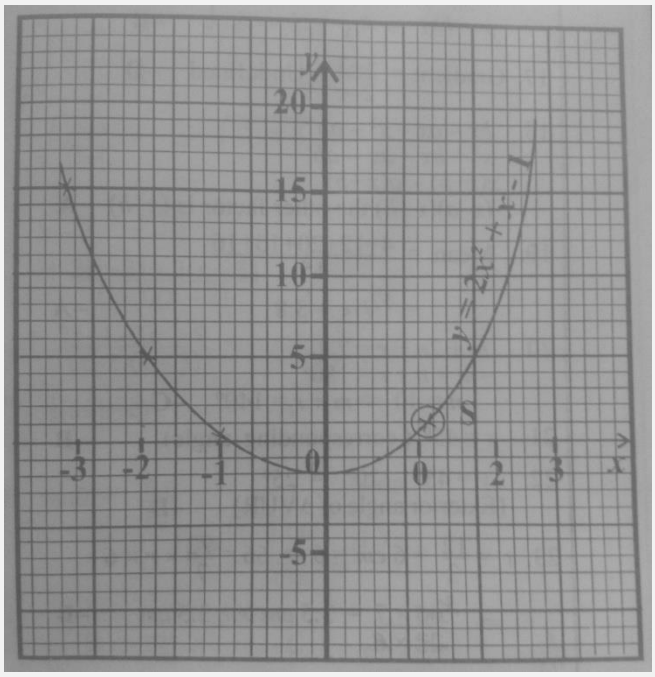
A. 4

B. 6

C. 8

D. 9

The graph below is for the relation $y = 2x^2 + x - 1$. ***Use it to answer questions 27-28.***



27. What are the coordinates of the point S?

A. (1, 0.2)

B. (1, 0.4)

C. (1, 2.0)

D. (1, 4.0)

28. Find the minimum value of y.

A. 0.00

B. -0.65

C. -1.25

D. -2.10

29. A ship sails x km due east to a point E and continues x km due north to F. Find the bearing of F from the starting point.

A. 045º

B. 090º

C. 135º

D. 225º

30. If x:y = 3:2 and y:z = 5:4, find the value of x in the ratio x:y:z.

A. 8

B. 10

C. 15

D. 20

31. A trader bought sachet water for GH¢55.00 per dozen and sold them at 10 for GH¢50.00. Calculate, correct to 2 decimal places, his percentage gain.

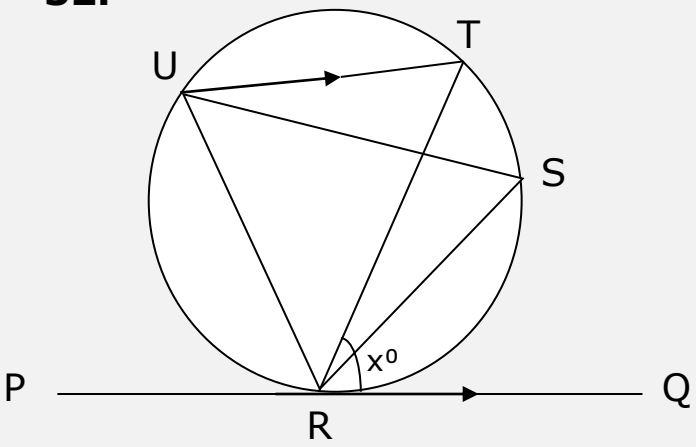
A. 8.00%

B. 8.30%

C. 9.09%

D. 10.00%

32.



In the figure, PQ is a tangent to the circle at R and UT is parallel to PQ. If ∠TRQ = x⁰, find ∠URT in terms of x.

A. $2x^0$

B. $(90 - x)^0$

C. $(90 + x)^0$

D. $(120 - 2x)^0$

33. Given that $\cos x = \frac{12}{13}$, evaluate $\frac{1-\tan x}{\tan x}$

A. $\frac{5}{13}$

B. $\frac{5}{7}$

C. $\frac{7}{5}$

D. $\frac{13}{5}$

34. Approximate 0.0033780 to 3 significant figures.

A. 338

B. 0.338

C. 0.00338

D. 0.003

35. Simplify: $\sqrt{\frac{8^2 \times 4^n + 1}{2^{2n} \times 16}}$

A. 16

B. 8

C. 4

D. 1

36. If $\frac{2}{x-3} - \frac{3}{x-2}$ is equal to $\frac{P}{(x-3)(x-2)}$, find P.

A. –x-5

B. –(x+3)

C. 5x – 13

D. 5 – x

37. Subtract $\frac{1}{2}(a-b-c)$ from the sum of $\frac{1}{2}(a-b+c)$ and $\frac{1}{2}(a+b-c)$

A. $\frac{1}{2}(a+b+c)$

B. $\frac{1}{2}(a-b-c)$

C. $\frac{1}{2}(a-b+c)$

D. $\frac{1}{2}(a+b-c)$

38. A man's eye level is 1.7 m above the horizontal ground and 13 m from a vertical pole. If the pole is 8.3 m high, calculate, correct to the nearest degree, the angle of elevation of the top of the pole from his eyes.

A. 33º

B. 32º

C. 27º

D. 26º

39. A chord subtends an angle of 120º at the centre of a circle of radius 3.5 cm. Find the perimeter of the minor sector containing the chord. [Take $\pi = \frac{22}{7}$]

A. $14\frac{1}{3}$ cm

B. $12\frac{5}{6}$ cm

C. $8\frac{1}{7}$ cm

D. $7\frac{1}{3}$ cm

40. In parallelogram, PQRS, QR is produced to M such that /QR/ = /RM/. What fraction of the area of PQMS is the area of PRMS?

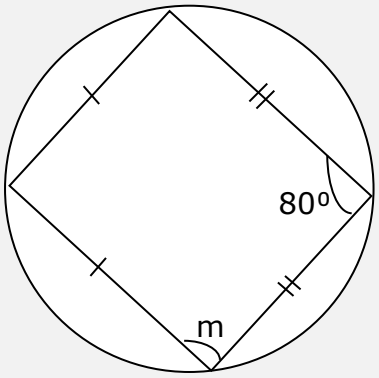
A. $\frac{1}{4}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. $\frac{3}{4}$

41.



Determine the value of m in the diagram.

A. 80º

B. 90º

C. 110º

D. 150^0

42. In a cumulative frequency graph, the lower quartile is 18 years while the 60^{th} percentile is 48 years. What percentage of the distribution is at most 18 years or greater than 48 years.

A. 15%

B. 35%

C. 65%

D. 85%

43. If a number is selected at random from each of the sets P={1, 2, 3} and Q = {2, 3, 5}, find the probability that the sum of the numbers is prime.

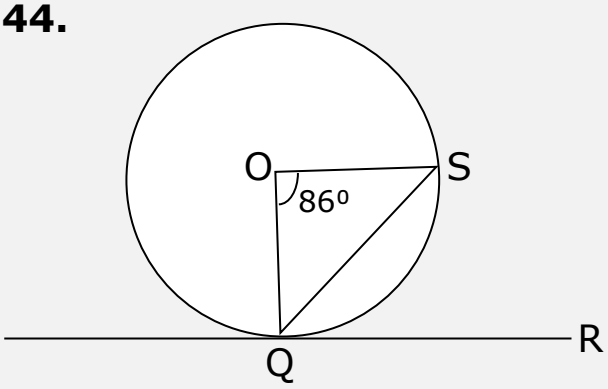
A. $\frac{5}{9}$

B. $\frac{4}{9}$

C. $\frac{1}{3}$

D. $\frac{2}{9}$

44.



In the diagram, O is the centre of the circle, PR is a tangent to the centre at Q and ∠SOQ = 86^0. Calculate the value ∠SQR

A. 43^0

B. 47^0

C. 54^0

D. 86^0

45. If log 5.957 = 0.7750, find log $\sqrt[3]{0.0005957}$

A. 4.1986

B. 2.9250

C. 1.5917

D. 1.2853

46. The probability of an event P happening is $\frac{1}{5}$ and that of event Q is $\frac{1}{4}$. If the events are independent, what is the

probability that neither of them happens?

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

B. $\frac{3}{4}$

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

D. $\frac{1}{20}$

47. Each exterior angle of a polygon is 30º. Calculate the sum of the interior angles.

A. 540º

B. 720º

C. 1080º

D. 1800º

48. Find the number of terms in the arithmetic progression (A.P) 2, -9, -20, ..., -141.

A. 11

B. 12

C. 13

D. 14

49. In what modulus is it true that 9 + 8 = 5

A. mod 10

B. mod 11

C. mod 12

D. mod 13

50. The radii of the base of two cylindrical tins, P and Q are r and 2r respectively. If the water level in P is 10 cm high, what would be the height of the same quantity of water in Q?

A. 2.5 cm

B. 5.0 cm

C. 7.5 cm

D. 20.0 cm

WAEC MATHS OBJECTIVE QUESTIONS (PT.6)

1. If {x: 2 ≤ x ≤ 18; x ∈ integer} and 7 + x = 4 (mod 9), find the highest value of x.

A. 2
B. 5
C. 15
D. 18

2. The sum of 11011_2, 11111_2 and 10000_2 is $10m10n0_2$, find the values of m and n.

A. m = 0, n = 0
B. m = 1, n = 0
C. m = 0, n = 1
D. m = 1, n = 1

3. A trader bought an engine for $15,000.00 outside Nigeria. If the exchange rate is $0.075 to ₦1.00, how much did the engine cost in naira?

A. ₦250,000.00
B. ₦200,000.00
C. ₦150,000.00
D. ₦100,000.00

4. If $\frac{27^x \times 3^{1-x}}{9^{2x}} = 1$, find the value of x.

A. 1
B. ½
C. -½
D. -1

5. Find the 7^{th} term of the sequence: 2, 5, 10, 17, 26 ...

A. 37
B. 48
C. 50
D. 63

6. Given that $\log_x 64 = 3$, evaluate $x \log_2 8$

A. 6
B. 9
C. 12
D. 24

7. If $2^n = y$, find $2^{(2+n/3)}$

A. $4y^{1/3}$
B. $4y^{-3}$

C. $2y^{1/3}$

D. $2y^{-3}$

8. Factorize completely: 6ax – 12by – 9ay + 8bx.

A. (2a – 3b)(4x + 3y)

B. (3a + 4b)(2x + 3y)

C. (3a – 4b)(2x + 3y)

D. (2a + 3b)(4x – 3y)

9. Find the equation whose roots are ¾ and -4

A. $4x^2 – 13x + 12 = 0$

B. $4x^2 – 13x - 12 = 0$

C. $4x^2 + 13x - 12 = 0$

D. $4x^2 + 13x + 12 = 0$

10. If m = 4, n = 9 and r = 16, evaluate $\frac{m}{n} - 1\frac{7}{9} + \frac{n}{r}$

A. $1\frac{5}{16}$

B. $1\frac{1}{16}$

C. $\frac{1}{16}$

D. $-\frac{37}{48}$

11. Adding 42 to a given positive number gives the same result as squaring the number. Find the number.

A. 14

B. 13

C. 7

D. 6

12. Ada draws the graph of $y = x^2 – x – 2$ and $y = 2x – 1$ on the same axes. Which of these equations is she solving?

A. $x^2 – x – 30 = 0$

B. $x^2 – 3x – 1 = 0$

C. $x^2 – 3x – 3 = 0$

D. $x^2 + 3x – 1 = 0$

13. The volume of a cone of height 3 cm is 38½ cm^3. Find the radius of its base. [Take $\pi = \frac{22}{7}$]

A. 3.0 cm

B. 3.5 cm

C. 4.0 cm

D. 4.5

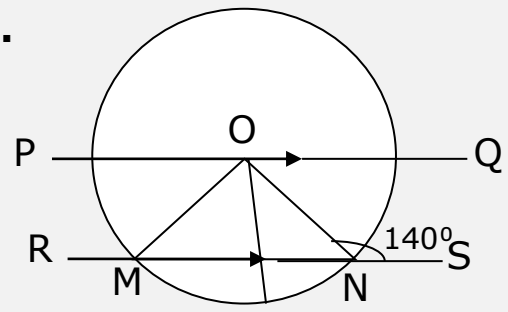
14. A sector of a circle with radius 6 cm subtends an angle of 60º at the centre. Calculate its perimeter in terms of π.

A. 2(π + 6) cm
B. 2(π + 3) cm
C. 2(π + 2) cm
D. (π + 12) cm

15. The dimensions of a rectangular tank are 2 m by 7 m by 11 m. If its volume is equal to that of a cylindrical tank of height 4 cm, calculate the base radius of the cylindrical tank. [Take π = $\frac{22}{7}$]

A. 14 m
B. 7 m
C. $3\frac{1}{2}$ m
D. $1\frac{3}{4}$ cm

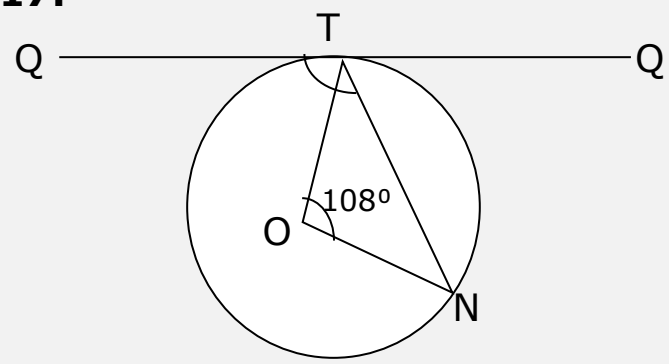
16.



In the diagram, O is the centre of the circle. If PQ//RS and ∠ONS = 140º, find the size of ∠POM.

A. 40º
B. 50º
C. 60º
D. 80º

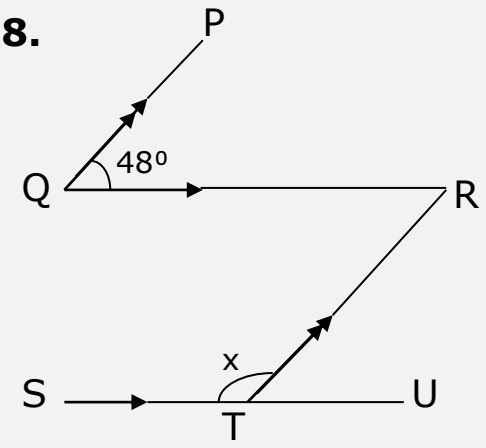
17.



In the diagram, PTR is a tangent to the circle centre O. If angle TON = 108º, calculate the size of angle PTN.

A. 132º
B. 126º
C. 108º
D. 102º

18.



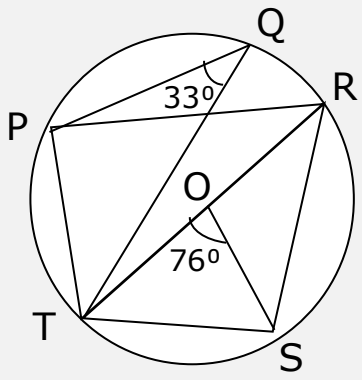
In the diagram, PQ//RT, QR//SU, ∠PQR = 48⁰ and ∠RTS = x. Find the value of x.

A. 134⁰

B. 132⁰

C. 96⁰

D. 48⁰



In the diagram, O is the centre of the circle. RT is a diameter, ∠PQT = 33⁰ and ∠TQS = 76⁰

Use the diagram to answer questions 19 and 20

19. Calculate the value of angle PTR.

A. 73⁰

B. 67⁰

C. 57⁰

D. 37⁰

20. Find the size of angle PRS.

A. 76⁰

B. 71⁰

C. 38⁰

D. 33⁰

The table below shows some values for a linear graph.

x	0	1¼	2	4
y	3	1½		

Use it to answer questions 21 and 22.

21. Find the gradient of the line.

A. 1

B. 2

C. 3

D. 4

22. What is the value of y when x =2

A. 5
B. 7
C. 9
D. 11

23. Given that $\tan x = \frac{2}{3}$ where $0^0 \leq x \leq 90^0$, find the value of 2sinx.

A. $\frac{2\sqrt{13}}{13}$
B. $\frac{3\sqrt{13}}{13}$
C. $\frac{4\sqrt{13}}{13}$
D. $\frac{6\sqrt{13}}{13}$

24. PQRS is a square. If X is the midpoint of PQ, calculate, correct to the nearest degree, ∠ZPX.

A. 53^0
B. 55^0
C. 63^0
D. 65^0

25. The angle of elevation of an aircraft from a point K on the horizontal ground is 30^0. If the aircraft is 800 m above the ground, how far is it from K?

A. 400.00 m
B. 692.82 m
C. 923.76 m
D. 1,600.00 m

26. The population of students in a school is 810. If this is represented on a pie chart, calculate the sectoral angle for a class of 72 students.

A. 32^0
B. 45^0
C. 60^0
D. 75^0

27. The scores of twenty students in a test are as follows: 44, 47, 48, 49, 50, 51, 52, 53, 53, 54, 58, 59, 60, 61, 63, 65, 67, 70, 73, 75. Find the third quartile.

A. 62
B. 63
C. 64

D. 65

28.

Scores	0-4	5-9	10-14
Frequency	2	1	2

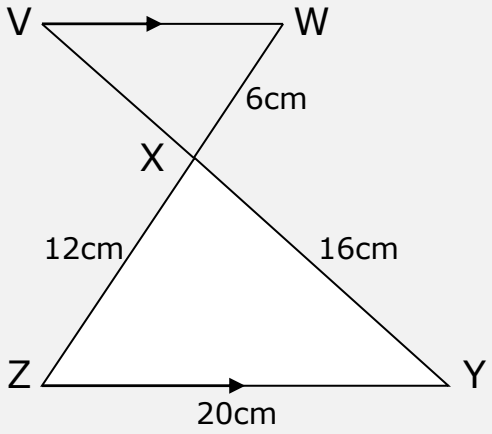
The table shows the distribution of scores of some students in a test. Calculate the mean score.

A. 5.6
B. 6.2
C. 6.6
D. 7.0

29. The probability that Kebba, Ebou and Omar will hit a target are $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{4}{5}$ respectively. Find the probability that only Kebba will hit the target.

A. $\frac{2}{5}$
B. $\frac{7}{60}$
C. $\frac{1}{30}$
D. $\frac{1}{60}$

30.



In the diagram, VW//YZ, /WX/=6cm, /XY/ = 16 cm, /YZ/ = 20 cm and /ZX/ = 12 cm. Calculate /VX/.

A. 3 cm
B. 4 cm
C. 6 cm
D. 8 cm

31. Tom will 25 years old in n years' time. If he/she is 5 years younger than Bade, find Bade's present age.

A. (30 – n) years
B. (20 – n) years
C. (25 – n) years
D. (30 + n) years

32. $\frac{\sqrt{2}+\sqrt{3}}{\sqrt{3}}$ is simplified as m + n$\sqrt{6}$, find the value of (m + n).

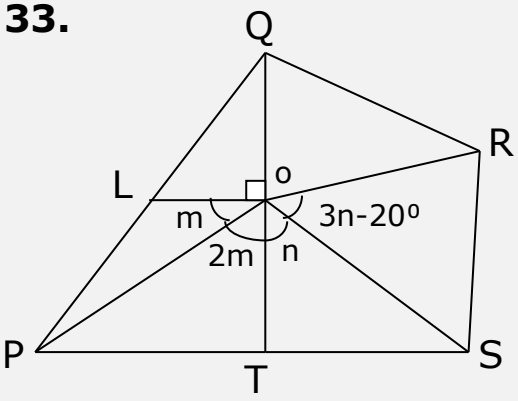
A. $\frac{1}{3}$

B. $\frac{2}{3}$

C. $1\frac{1}{3}$

D. $1\frac{2}{3}$

33.



In the diagram, QT and QR are straight lines, ∠ROS = (3n - 20⁰), ∠POT = 2m, ∠SOT = n, ∠POL = m and ∠QOL is a right angle. Find the value of n.

A. 35⁰

B. 40⁰

C. 55⁰

D. 60⁰

34. Make k the subject of the relation T = $\sqrt{\frac{Tk-H}{k-H}}$

A. $k = \frac{H(T^2-1)}{T^2-T}$

B. $k = \frac{HT}{(T-1)^2}$

C. $k = \frac{H(T^2+1)}{T}$

D. $k = \frac{H(T-1)}{T}$

35. Which of the following is used to determine the mode of a group of data?

A. bar chart

B. frequency polygon

C. ogive

D. histogram

36. The area of a rhombus is 110 cm^2. If the diagonals are 20 cm and (2x + 1) cm long, find the value of x.

A. 5.0

B. 4.0

C. 3.0

D. 2.5

37. Simplify: $\frac{3x-y}{xy} - \frac{2x+y}{2xy} + \frac{1}{2}$

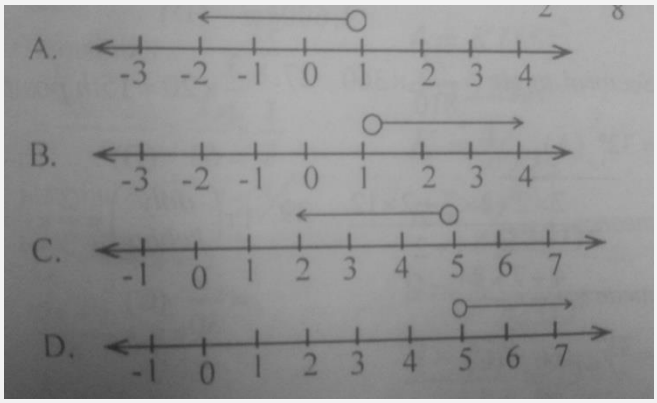
A. $\frac{4x+5y-xy}{2xy}$

B. $\frac{5x-4y+xy}{2xy}$

C. $\frac{5x+4y-xy}{2xy}$

D. $\frac{4x-5y+xy}{2xy}$

38. Illustrate graphically the solution of $\frac{y}{2} + \frac{1}{8} > \frac{5y}{8}$



39. A farmer uses $\frac{2}{5}$ of his land to grow cassava, $\frac{1}{3}$ of the remainder for yam and the rest for maize. Find the part of the land used for maize.

A. $\frac{2}{15}$

B. $\frac{2}{5}$

C. $\frac{2}{3}$

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

40. The rate of consumption of petrol by a vehicle varies directly as the square of the distance covered. If 4 litres of the petrol is consumed on a distance of 15 km, how far will the vehicle go on 9 litres of petrol?

A. $22\frac{1}{2}$ km

B. 30 km

C. $33\frac{3}{4}$ km

D. 45 km

41. A trader bought 100 oranges at 5 for ₦40.00 and sold them at 20 for ₦120.00. Find the profit or loss percent.

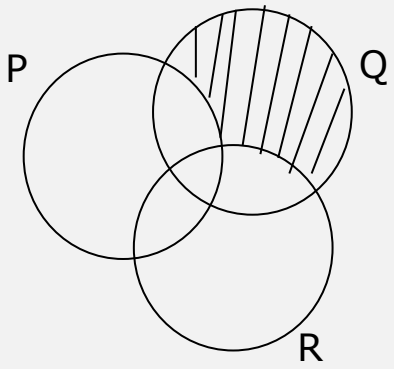
A. 20% profit

B. 20% loss

C. 25% profit

D. 25% loss

42.



Describe the shaded portion in the diagram.

A. P′ ∩ Q ∩ R′
B. (P ∩ R)′ ∩ Q
C. P′ ∩ Q ∩ R
D. (P ∪ Q)′ ∩ R

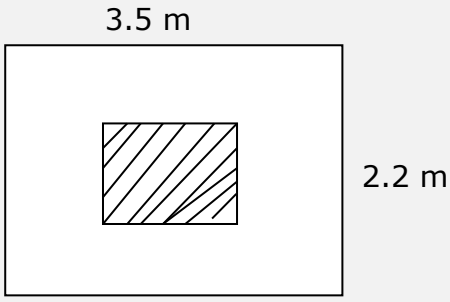
43. Find the value of p if $\frac{1}{4}p + 3q = 10$ and 2p - $\frac{1}{3}q$ = 7

A. 4
B. 3
C. -3
D. -4

44. Calculate the mean deviation of 5, 3, 0, 7, 2, 1.

A. 0.0
B. 2.0
C. 2.5
D. 3.0

45.



In the diagram, the shaded part is a carpet laid in a room with dimensions 3.5 m by 2.2 m leaving a margin of 0.5 m round it. Find the area of the margin.

A. 4.7 m^2
B. 4.9 m^2
C. 5.7 m^2
D. 5.9 m^2

46. Two angles of a pentagon are in the ratio 2:3. The others are 60^0 each. Calculate the smaller of the two angles.

A. 72^0
B. 100^0
C. 120^0
D. 144^0

47. A letter is selected from the letters of the English alphabet.

What is the probability that the letters selected is from the word **MATHEMATICS**

A. $\frac{9}{13}$

B. $\frac{11}{26}$

C. $\frac{4}{13}$

D. $\frac{1}{26}$

48. In a circle radius r cm, a chord $16\sqrt{3}$ cm long is 10 cm from the centre of the circle. Find, correct to the nearest cm, the value of r.

A. 22 cm

B. 17 cm

C. 16 cm

D. 15 cm

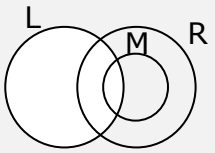
49. Consider the following statements:

X: Locally manufactured tyres are attractive

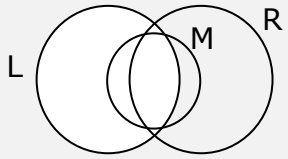
Y: Many locally manufactured tyres do not last long

Denoting locally manufactured tyres by M, attractive tyres by R and long lasting tyres by L, which of these Venn diagrams illustrates the statement?

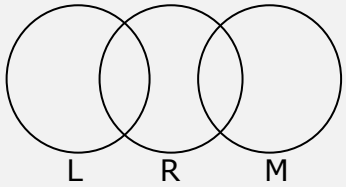
A.



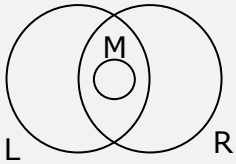
B.



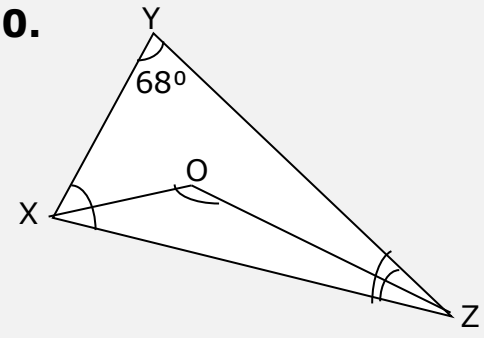
C.



D.



50.



In the diagram, OX bisects ∠YXZ and OZ bisects ∠YZX. If ∠XYZ = 68⁰, calculate the value of ∠XOZ.

A. 68⁰

B. 72º

C. 112º

D. 124º

WAEC MATHS OBJECTIVE QUESTIONS (PT.7)

1. If $23_x + 101_x = 130_x$, find the value of *x*.

A. 7
B. 6
C. 5
D. 4

2. Simplify: $(\frac{3}{4} - \frac{2}{3}) \times 1\frac{1}{5}$

A. $\frac{1}{60}$
B. $\frac{5}{72}$
C. $\frac{1}{10}$
D. $1\frac{7}{10}$

3. Simplify: $(\frac{10\sqrt{3}}{\sqrt{5}} - \sqrt{15})^2$

A. 75.00
B. 15.00
C. 8.66
D. 3.87

4. The distance, d, through which a stone falls from rest varies directly as the square of the time, *t*, taken. If the stone falls 45cm in 3 seconds, how far will it fall in 6 seconds?

A. 90cm
B. 135cm
C. 180cm
D. 225cm

5. Which of following is a valid conclusion from the premise. "Nigeria footballers are good footballers"?

A. Joseph plays football in Nigeria therefore he is a good footballer
B. Joseph is a good footballer therefore he is a Nigerian footballer
C. Joseph is a Nigerian footballer therefore he is a good footballer
D. Joseph plays good football therefore he is a Nigerian footballer

6. On a map, 1cm represent 5km. Find the area on the map that represents 100km^2.

A. 2cm^2
B. 4cm^2
C. 8cm^2

D. 8cm^2

7. Simplify; $\frac{3^{n-1} \, x \, 27^{n+1}}{81^n}$.

A. 3^{2n}

B. 9

C. 3^n

D. 3^{n+1}

8. What sum of money will amount to D10,400 in 5 years at 6% simple interest?

A. D8,000.00

B. D10,000.00

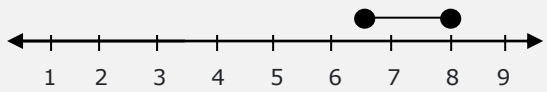
C. D12,000.00

D. D16,000.00

9. Which of the following number lines illustrates the solution of the inequality $4 \leq \frac{1}{3}(2x-1) < 5$?

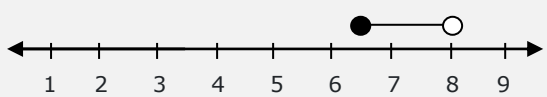
A.

B.



C.

D.



10. The roots of a quadratic equation are $\frac{4}{3}$ and $-\frac{3}{7}$, Find the equation.

A. $21x^2 - 19x - 12 = 0$

B. $21x^2 + 37x - 12 = 0$

C. $21x^2 - x + 12 = 0$

D. $21x^2 + 7x - 4 = 0$

11. Find the values of y for which the expression $\frac{y^2-9y+18}{y^2+4y-21}$ is undefined.

A. 6, -7

B. 3, -6

C. 3, -7

D. -3, -7

12. Given that 2x + y = 7 and 3x - 2y = 3, by how much is 7x greater than 10?

A. 1

B. 3

C. 7

D. 17

13. Simplify; $\frac{2}{1-x} - \frac{1}{x}$

A. $\frac{x+1}{x(1-x)}$

B. $\frac{3x-1}{x(1-x)}$

C. $\frac{3x+1}{x(1-x)}$

D. $\frac{x-1}{x(1-x)}$

14. Make *S* the subject of the relation: P = S + $\frac{sm^2}{nr}$

A. s = $\frac{mrp}{nr+m^2}$

B. s = $\frac{nr+m^2}{mrp}$

C. s = $\frac{nrp}{mr+m^2}$

D. s = $\frac{nrp}{nr+m^2}$

15. Factorize; $(2x+3y)^2 - (x-4y)^2$

A. (3x - y) (x + 7y)

B. (3x + y) (2x - 7y)

C. (3x + y) (x - 7y)

D. (3x - y) (2x + 7y)

16. The curve surface area of a cylinder, 5cm high is 110cm^2. Find the radius of its base.

[Take $\pi=\frac{22}{7}$]

A. 2.6cm

B. 3.5cm

C. 3.6cm

D. 7.0cm

17. The volume of a pyramid with height 15cm is 90cm^3. If its base is a rectangle with dimension *x*cm by 6cm, find the value of x

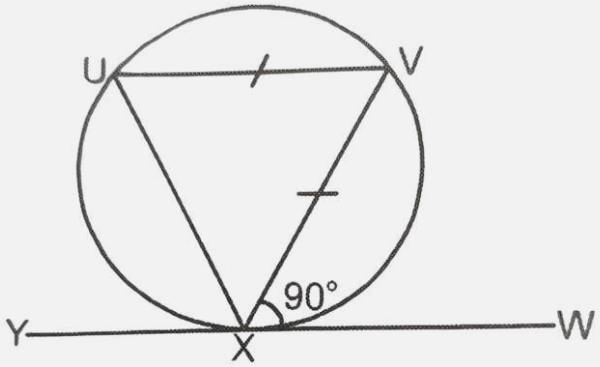
A. 3

B. 5

C. 6

D. 8

18.



In the diagram, $\overline{YW}$ is a tangent to the circle at X, |UV| = |VX| and <VXW = 50º. Find the value of <UXY.

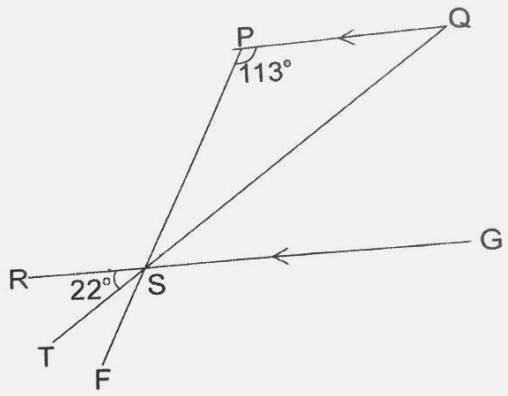
A. 70º

B. 80º

C. 105º

D. 110º

19.



In the diagram, $\overline{PF}$, $\overline{QT}$, $\overline{RG}$ intersect at *S* and PG||RG. If <SPQ = 113° and <RST = 220, find <PSQ

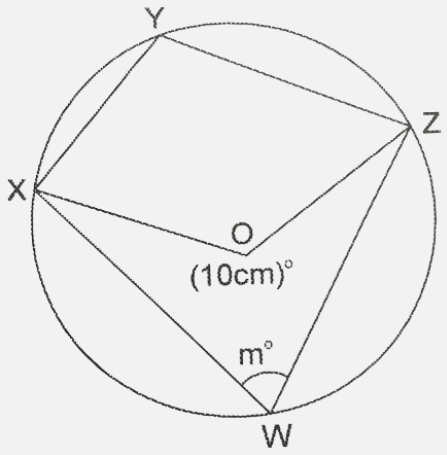
A. 22°

B. 45°

C. 67°

D. 89°

20.



In the diagram, O is the Centre of the circle, <XOZ = (10cm)° and <XWZ = m°. Calculate the value of m.

A. 30

B. 36

C. 40

D. 72

21. Kweku walked 8m up to slope and was 3m above the ground. If he walks 12m further up the slope, how far above the ground will he be?

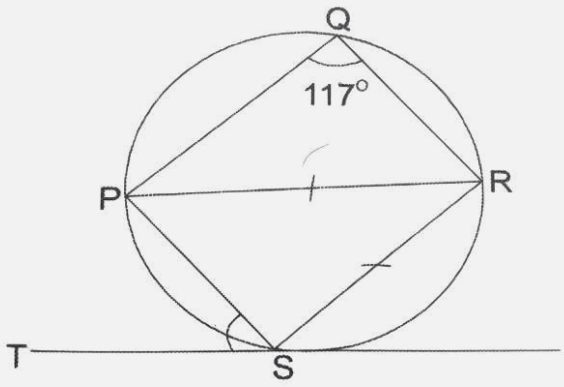
A. 4.5m

B. 6.0m

C. 7.5m

D. 9.0m

22.



In the diagram, TS is a tangent to the circle at S. |PR| and <PQR = 177°. Calculate <PST.

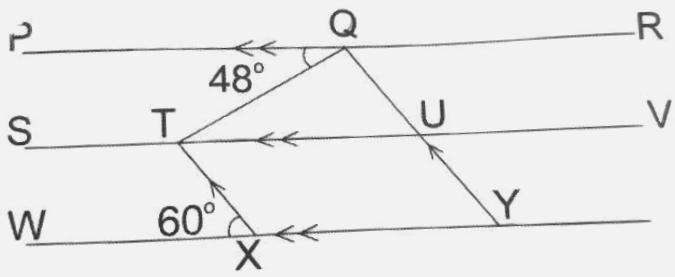
A. 54°

B. 44°

C. 34°

D. 27°

23.



In the diagram, PR||SV||WY|, TX||QY, <PQT = 48° and <TXW = 60°.Find <TQU.

A. 120°

B. 108°

C. 72°

D. 60°

A straight Line passes through the points P (1,2) and Q (5,6), ***Use this information to answer questions 24 and 25.***

24. Calculate the gradients of the line PQ.

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

B. $\frac{2}{3}$

C. $\frac{3}{2}$

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

25. Calculate the length PQ.

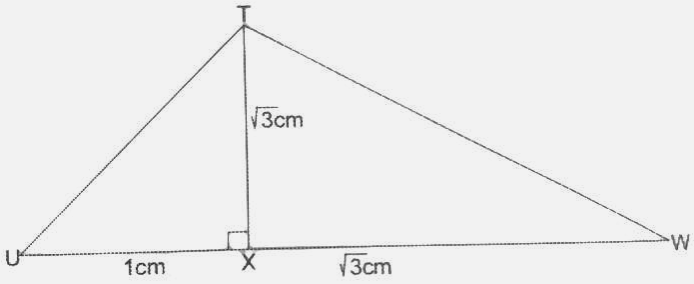
A. $4\sqrt{11}$

B. $4\sqrt{10}$

C. $2\sqrt{17}$

D. $2\sqrt{13}$

26.



In the diagram, TX is perpendicular to UW, |UX| = 1cm and |TX| = |WX| = 3–√3cm. Find UTW

A. 135°

B. 105°

C. 75°

D. 60°

27. If cos θ = x and sin 60° = x + 0.5 0° < θ < 90°, find, correct to the nearest degree, the value of θ

A. 32°

B. 40°

C. 60°

D. 69°

Age (yrs)	*13*	*14*	*15*	*16*	*17*
Frequency	*10*	*24*	*8*	*5*	*3*

The table shows the ages of students in a club. ***Use it to answer questions 28 and 29.***

28. How many students are in the club?

A. 50

B. 55

C. 60

D. 65

29. Find the median age.

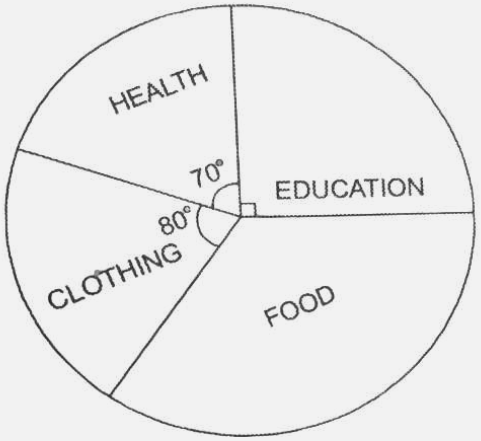
A. 13

B. 14

C. 15

D. 16.

30.



The figure is a pie chart which represents the expenditure of a family in a year. If the total income of the family was *Le* 10,800,000.00, how much was spent on food?

A. Le 2,250,000.00

B. Le 22,700,000.00

C. Le 3,600,000.00

D. Le 4,500,000.00

31. A fair die is thrown two times. What is the probability that the sum of the scores is at least 10?

A. $\frac{5}{36}$

B. $\frac{1}{6}$

C. $\frac{5}{18}$

D. $\frac{2}{3}$

32. The marks of eight students in a test are: *10, 4, 5, 3, 14, 13, 16,* and *7*. Find the range.

A. 16
B. 14
C. 13
D. 11

33. If $Log_2 (3x - 1) = 5$, Find x.

A. 2.00
B. 3.67
C. 8.67
D. 11.00

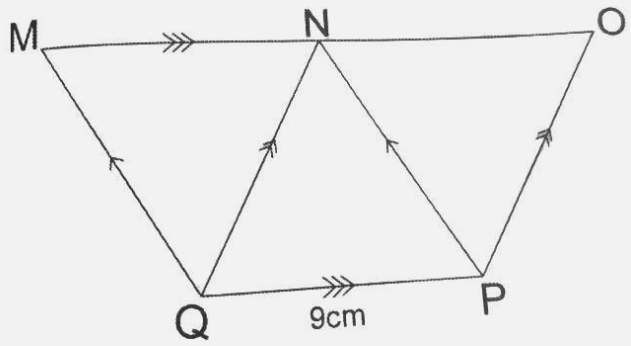
34. A sphere of radius *r*cm has the same volume as cylinder of radius 3cm and the height 4cm. Find the value of *r*.

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

35. Express 1975 correct to 2 significant figures.

A. 20
B. 1,900
C. 1,980
D. 2,000

36.



The diagram, MOPQ is a trapezium with QP||MO, MQ||NP, NQ||OP, |QP| = 9cm and the height of ΔQNP = 6cm, calculate the area of the trapezium.

A. $96cm^2$
B. $90cm^2$
C. $81cm^2$
D. $27cm^2$

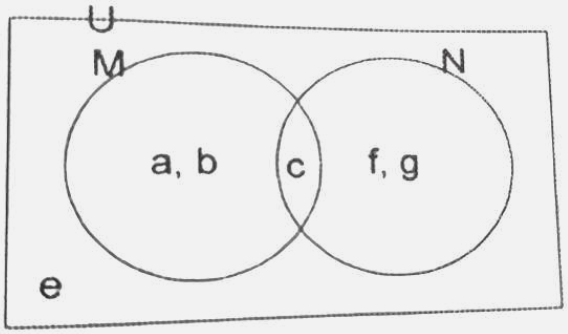
37. The perimeter of a sector of a circle of radius 21cm is 64cm. Find the angles of the sector.

[Take $\pi = \frac{22}{7}$]

A. 70^0
B. 60^0
C. 55^0

D. 42^0

38.



Examine M' ∩ N from the Venn diagram

A. {f, g}
B. {e}
C. {e, f, g}
D. {e, f, g}

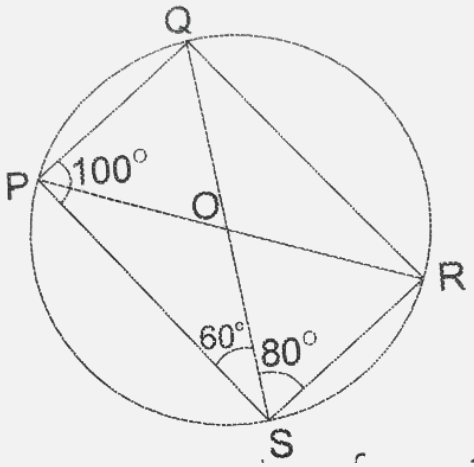
39. If 20(mod 9) is equivalent to y (mod 6), find y.

A. 1
B. 2
C. 3
D. 4

40. Simplify $\frac{(p+r)^2-r^2}{2p^2-4pr}$

A. $\frac{1}{2}$
B. p – 2r
C. $\frac{1}{p-2r}$
D. $\frac{2p}{p-2r}$

41.



In the diagram, O is the Centre of the circle, <QPS = 100°, <PSQ = 60° and <QSR. Calculate <SQR

A. 20°
B. 40°
C. 60°
D. 80°

42. A bag contains 5 red and 4 blue identical balls. Id two balls are selected at random from the bag, one after the other, with replacement, find the probability that the first is red and the second is blue.

A. $\frac{2}{9}$

B. $\frac{5}{18}$

C. $\frac{20}{81}$

D. $\frac{5}{9}$

43. The relation $y = X^2 + 2X + K$. passes through the point (2,0), Find the value of K.

A. – 8

B. – 4

C. 4

D. 8

44. Find the next three terms of the sequence: *0, 1, 1, 2, 3, 5, 8,…*

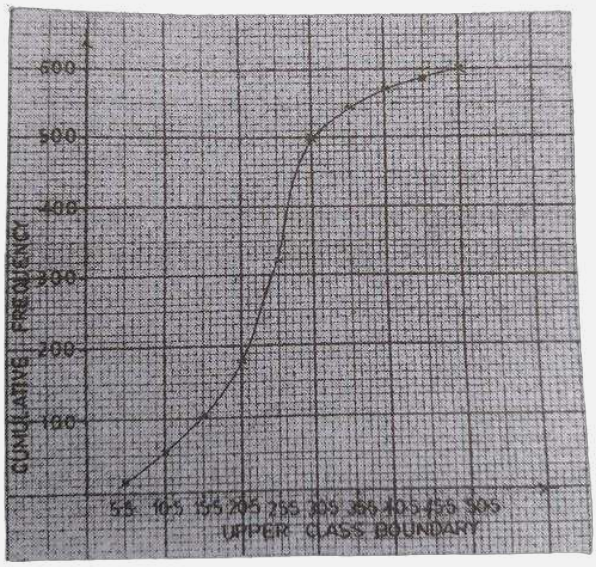
A. 13, 19, 23

B. 9, 11, 13

C. 11, 15, 19

D. 13, 21, 34

45.



Find the lower quartile of the distribution illustrated by the cumulative frequency curve.

A. 17.5

B. 19.0

C. 27.5

D. 28.0

46. The ratio of the exterior angle to the interior angle of a regular polygon is 1:11. How many sides has the polygon?

A. 30

B. 24

C. 18

D. 12

47. Halima is *n* years old. Her brother's age is 5 years more than half of her age. How old is her brother?

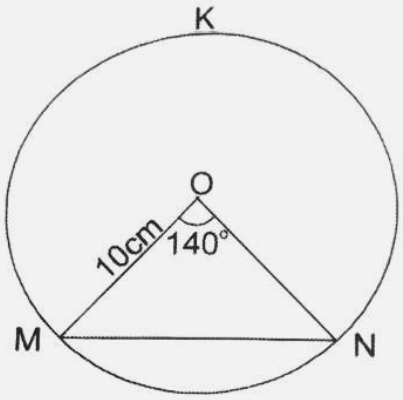
A. $\frac{n}{2} + \frac{5}{2}$

B. $\frac{n}{2} - 5$

C. 5 - $\frac{n}{2}$

D. $\frac{n}{2} + 5.$

48.



In the diagram MN is a chord of a circle KMN Centre O and radius 10cm. If <MON = 140, find, correct to the nearest cm, the length of the chord MN.

A. 19cm

B. 18cm

C. 17cm

D. 12cm

49. An object is 6m away from the base of a mast. If the angle of depression of the object from the top of the mast is 50^0, find, correct to 2 decimal places, the height of the mast.

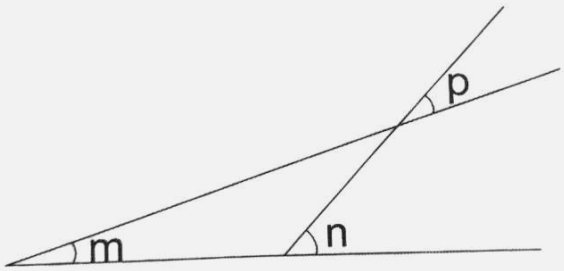
A. 8.60m

B. 7.83m

C. 7.51m

D. 7.15m

50.



From the diagram, which of the following is true?

A. m + n + p = 180^0

B. m + n = 180^0

C. m = p + n

D. n = m + p

~~DISCLAIMER~~

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