1. Express, correct to three significant figures, 0.003597.

   A. 0.00359 B. 0.00360 C. 0.004 D. 0.359

2. Evaluate $(0.064)^{-1}$.

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

3. Solve $\frac{y+1}{2} - \frac{2y-1}{3} = 4$.

   A. $y = 29$ B. $y = -29$ C. $y = -19$ D. $y = 19$

4. Simplify, correct to three significant figures $(27.63)^2 - (12.37)^2$.

   A. 610 B. 611 C. 612 D. 614

5. If $7 + y = 4 (\text{mod} 8)$, find the least value of $y, 10 \leq y \leq 30$.

   A. 21 B. 19 C. 13 D. 11

6. If $T = \{$ prime numbers $\}$ and $M = \{$ odd numbers $\}$ are subsets of $\mu = \{x : 0 < x \leq 10\}$, and x is an integer, find $(T' \cap M')$.

   A. $\{1, 2, 3, 5, 7, 8, 9\}$ B. $\{1, 2, 4, 6, 8, 10\}$ C. $\{1, 4, 6, 8, 10\}$ D. $\{4, 6, 8, 10\}$

7. Evaluate $\frac{\log_3 9 - \log_2 8}{\log_3 9}$.

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

8. If $23_y = 1111_{\text{two}}$, find the value of y.

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

9. If 6, p and 14 are consecutive terms in Arithmetic Progression (A.P.), find the value of p.

   A. 8 B. 6 C. 10 D. 9

10. Evaluate $2\sqrt{28} - 3\sqrt{50} + \sqrt{72}$.

    A. $4\sqrt{7} + \sqrt{2}$ B. $4\sqrt{7} - 9\sqrt{2}$ C. $4\sqrt{7} - 11\sqrt{2}$ D. $4\sqrt{7} - 21\sqrt{2}$

11. If $m : n = 2 : 1$, evaluate: $\frac{3m^2 - 2n^2}{m^2 + mn}$.

    A. $\frac{3}{5}$ B. $\frac{3}{4}$ C. $\frac{5}{3}$ D. $\frac{4}{3}$

12. H varies directly as p and inversely as the square of y. If $H = 1, p = 8$ and $y = 2$, find H in terms of p and y.

    A. $H = \frac{p}{y^2}$ B. $H = \frac{p}{2y^2}$ C. $H = \frac{2p}{y^2}$ D. $H = \frac{p}{4y^2}$

13. Solve $4x^2 - 16x + 15 = 0$.

    A. $x = -1\frac{1}{2}$ or $-2\frac{1}{2}$ B. $x = 1\frac{1}{2}$ or $-1\frac{1}{2}$ C. $x = 1\frac{1}{2}$ or $2\frac{1}{2}$ D. $x = 1\frac{1}{2}$ or $-2\frac{1}{2}$

14. Evaluate $\frac{0.42 \div 2.5}{0.5 \times 2.05}$, leaving the answer in standard form.

A. 1.639×10^{-2} B. 1.639×10^{-1} C. 1.639×10^{1} D. 1.639×10^{2}

15. Simplify: $\log_{10} 6 - 3\log_{10} 3 + \frac{2}{23}\log_{10} 27$.

A. $2\log_{10} 3$ B. $\log_{10} 3$ C. $\log_{10} 2$ D. $3\log_{10} 2$

16. Bala sold an article for ₦6,900.00 and made a profit of 15%. Calculate his percentage profit if he had sold it for ₦6,600.00.

A. 13% B. 12% C. 10% D. 5%

17. If $3p = 4q$ and $9p = 8q - 12$, find the value of pq.

A. -12 B. -7 C. 7 D. 12

18. If $(0.25)^y = 32$, find the value of y.

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

19. There are 8 boys and 4 girls in a lift. What is the probability that the first person who steps out of the lift will be a boy?

A. $\frac{1}{4}$ B. $\frac{2}{3}$ C. $\frac{1}{3}$ D. $\frac{3}{4}$

20. Simplify: $\frac{x^2 - 5x - 14}{x^2 - 9x + 14}$.

A. $\frac{x+2}{x-2}$ B. $\frac{x-2}{x+4}$ C. $\frac{x+7}{x-7}$ D. $\frac{x-7}{x+7}$

21. Which of these values would make $\frac{3p-1}{p^2-p}$ undefined?

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

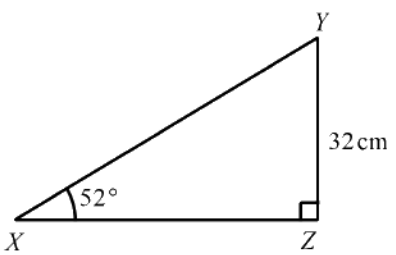
22. The total surface area of a solid cylinder is 165cm^2. If the base diameter is 7cm calculate its height. [Take $\pi = \frac{22}{7}$]

A. 2.0cm B. 4.0cm C. 4.5cm D. 7.5cm

23. If $2^a = \sqrt{64}$ and $\frac{b}{a} = 3$, evaluate $a^2 + b^2$.

A. 48 B. 90 C. 160 D. 250

24.



In ΔXYZ, $|YZ| = 32$cm, $\angle YXZ = 52^\circ$ and $\angle XZY = 90^\circ$. Find, correct to the nearest centimetre, $|XZ|$.

A. 13cm B. 20cm C. 25cm D. 31cm

25. If $\log_x 2 = 0.3$, evaluate $\log_x 8$.

A. 0.6 B. 0.9 C. 1.2 D. 2.4

26. An arc subtends an angle of 72° at the centre of a circle. Find the length of the arc if the radius of the circle is 3.5cm. $\left[\text{Take}\pi = \frac{22}{7}\right]$

A. 2.2cm B. 4.4cm C. 8.8cm D. 6.6cm

27. Make b the subject of the relation: $lb = \frac{1}{2}(a+b)h$.

A. $\frac{al}{2-h}$ B. $\frac{al}{2l-h}$ C. $\frac{2l-h}{al}$ D. $\frac{ah}{2l-h}$

28. Eric sold his house through an agent who charged 8% commission on the selling price. If Eric received \$117,760.00 after the sale, what was the selling price of the house?

A. \$120,000.00 B. \$125,000.00 C. \$128,000.00 D. \$130,000.00

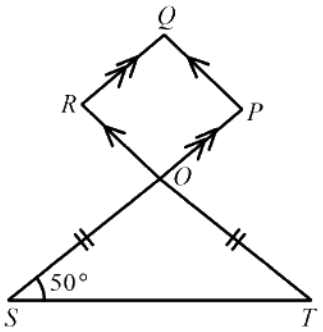
29. Find the angle which an arc of length 22cm subtends at the centre of a circle of radius 15cm. [Take $\pi =$

A. 156° B. 96° C. 84° D. 70°

30. A rectangular board has length 15cm and width $x$cm. If the sides are doubled, find its new area?

A. $15x\text{cm}^2$ B. $30x\text{cm}^2$ C. $45x\text{cm}^2$ D. $60x\text{cm}^2$

31.



In the diagram, POS and ROT are straight lines. $OPQR$ is a parallelogram, $|OS| = |OT|$ and $\angle OST = 50^\circ$. Calculate the value of $\angle OPQ$.

A. 160° B. 140° C. 120° D. 100°

32. Factorize completely: $(2x+2y)(x-y)+(2x-2y)(x+y)$.

A. $2(x-y)$ B. $2(x-y)(x+y)$ C. $4(x-y)$ D. $4(x-y)(x+y)$

33. The interior angles of a polygon are $3x^\circ$ $2x^\circ, 4x^\circ, 3x^\circ$ and $6x^\circ$. Find the size of the smallest angle of the polygon.

A. 30° B. 40° C. 60° D. 80°

34. A box contains 2 white and 3 blue identical balls. If two balls are picked at random from the box, one after the other with replacement what is the probability that they are of different colours?

A. $\frac{12}{25}$ B. $\frac{7}{20}$ C. $\frac{3}{5}$ D. $\frac{2}{3}$

35. Find the equation of a straight line passing through the point $(1, -5)$ and having gradient of $\frac{3}{4}$.

A. $3x - 4y - 23 = 0$ B. $3x - 4y + 23 = 0$ C. $3x + 4y + 23 = 0$ D. $3x + 4y - 23 = 0$

36. The foot of a ladder is 6m from the base of an electric pole. The top of the ladder rests against the pole at a point 8m above the ground. How long is the ladder?

A. 7m B. 10m C. 12m D. 14m

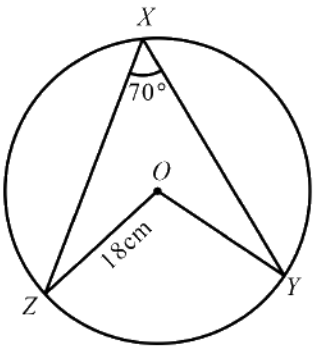
37. If $\tan x = \frac{3}{4}, 0 < x < 90$, evaluate $\frac{\cos x}{2 \sin x}$.

A. $\frac{2}{3}$ B. $\frac{4}{3}$ C. $\frac{3}{4}$ D. $\frac{8}{3}$

38. From the top of a vertical cliff 20m high, a boat at sea can be sighted 75m away and on the same horizontal position as the foot of the diff. Calculate, correct to the nearest metre, the angle of depression of the boat from the top of the cliff.

A. 15° B. 16° C. 75° D. 56°

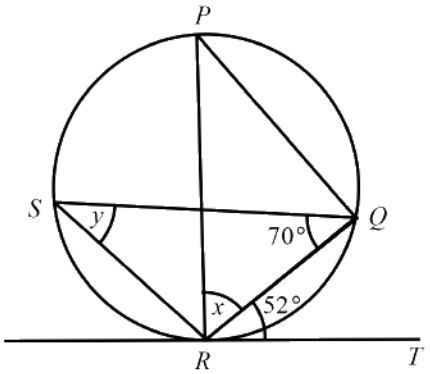
39.



In the diagram, O is the centre of the circle with radius 18cm. If the angle $\angle ZXY = 70°$ calculate the length of arc ZY. [Take $\pi = \frac{22}{7}$]

A. 80cm B. 44cm C. 22cm D. 11cm

In the diagram, RT is a tangent to the circle at $R, \angle PQR = 70°, \angle QRT = 52°, \angle QSR = y$, and $\angle PRQ = x$.



*Use the diagram to answer questions **40** and **41**.*

40. Find the value of y.

A. 18° B. 52° C. 60° D. 58°

41. Calculate the value of x.

A. 48° B. 55° C. 58° D. 70°

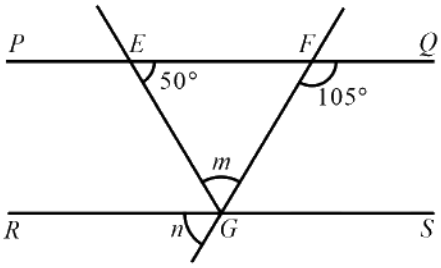
42. Calculate the variance of 2,4,7,8 and 9.

A. 2.6 B. 3.5 C. 6.8 D. 7.2

43. The fourth term of an Arithmetic Progression (A.P) is 37 and the first term is -20. Find the common difference.

A. 17 B. 19 C. 57 D. 63

In the diagram, $\overline{PQ}$ is parallel to $\overline{RS}$ $\angle QFG = 105^\circ$ and $\angle FEG = 50^\circ$.



*Use the diagram to answer questions **44** and **45**.*

44. Find the value of m.

A. 55° B. 75° C. 105° D. 130°

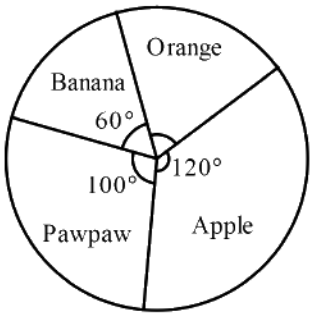
45. Find the value of n.

A. 130° B. 75° C. 55° D. 40°

46. A box contains 5 red, 6 green and 7 yellow pencils of the same size. What is the probability of picking a green pencil at random?

A. $\frac{1}{2}$ B. $\frac{1}{3}$ C. $\frac{1}{4}$ D. $\frac{1}{6}$

47.



The pie chart represents fruits on display in a grocery shop. If there are 60 oranges on display, how many apples are there?

A. 40 B. 80 C. 90 D. 70

The following are scores obtained by some students in a test:

8	18	10	14	18	11	13
14	13	17	15	8	16	13

*Use this information to answer questions **48** to **50**.*

48. Find the mode of the distribution.

A. 8 B. 13 C. 14 D. 18

49. Find the median score.

A. 13.0 B. 13.5 C. 14.0 D. 14.5

50. How many students scored above the mean score?

A. 7 B. 8 C. 9 D. 10