

1. $5\frac{2}{5} + 4\frac{3}{7} =$

- (A) $9\frac{5}{35}$

(B) $9\frac{6}{35}$

(C) $9\frac{12}{35}$

(D) $9\frac{29}{35}$

2. Express 0.12 as a fraction.

(A) $\frac{1}{9}$

(B) $\frac{3}{25}$

(C) $\frac{1}{8}$

(D) $\frac{3}{5}$

3. $11.1 \div 0.01 =$

(A) 110

(B) 111

(C) 1100

(D) 1110

4. There are 40 students in a class. Girls make up 60% of the class. 25% of the girls wear glasses. How many girls in the class wear glasses?

(A) 6

(B) 8

(C) 10

(D) 15

5.

Ann and Betty shared a sum of money in the ratio 2:3 respectively. Ann received \$120. What was Betty's share?

(A) \$ 72

(B) \$ 80

(C) \$180

(D) \$300

6. Express $4\frac{3}{8}$ as a decimal correct to 3 significant figures.

(A) 4.30

(B) 4.37

(C) 4.38

(D) 4.40

7. The FIRST three common multiples of 3, 4 and 6 are:

(A) 3, 4, 6

(B) 0, 1, 2

(C) 6, 8, 12

(D) 12, 24, 36

8. $-\left(\frac{1}{2}\right)^3$ is the same as

(A) $\frac{1}{8}$

(B) $-\frac{1}{6}$

(C) $\frac{1}{8}$

(D) $-\frac{1}{6}$

9. By the distributive law $49 \times 17 + 49 \times 3 =$

(A) $52 + 66$

(B) 52×66

(C) $49 + 20$

(D) 49×20

- 4 -

10. What is the value of the digit 2 in the number 48.621?

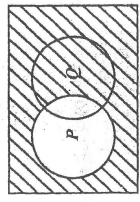
(A) $\frac{2}{100}$

(B) $\frac{2}{10}$

(C) 2

(D) 200

Item 11 refers to the Venn diagram below.



11. The shaded region represents

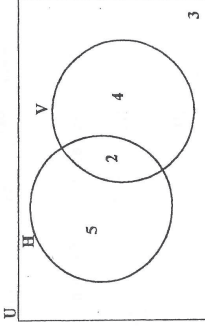
(A) P'

(B) $(P \cup Q)$

(C) $P \cup Q'$

(D) $Q \cap P'$

Item 14 refers to the Venn diagram below.



14. In the Venn diagram

$U = \{\text{students who play games}\}$

$H = \{\text{students who play hockey}\}$

$V = \{\text{students who play volleyball}\}$

The number of students in each set is indicated. How many students do NOT play volleyball?

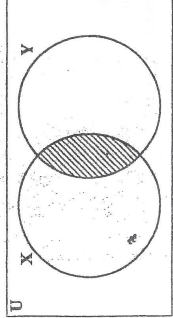
(A) 2

(B) 3

(C) 5

(D) 8

Item 12 refers to the Venn diagram below.



12. X represents the set of multiples of four.
Y represents the set of multiples of five.
The shaded region is the set of multiples of

(A) 8

(B) 9

(C) 10

(D) 20

15. A man's annual salary is \$45 000. His tax-free allowances total \$13 000. He has to pay a tax of 35% on his taxable income. The tax payable is

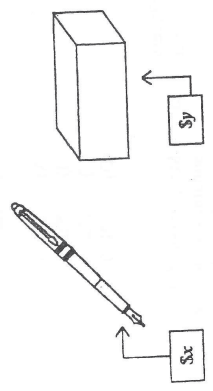
(A) \$ 4 550.00

(B) \$11 200.00

(C) \$15 750.00

(D) \$20 300.00

Item 24 refers to the information below.



28. Given $2x + 3 \geq 9$, the range of values of x is
- (A) $x > 3$
 - (B) $x \geq 3$
 - (C) $x > 6$
 - (D) $x \geq 6$

29. If $3 + \frac{2}{x} = 1$, then the value of x is
- (A) -1
 - (B) $\frac{1}{5}$
 - (C) $\frac{1}{2}$
 - (D) 5

24. The TOTAL cost of 3 pens and 2 boxes is

- (A) $3x + 2y$
- (B) $2x + 3y$
- (C) $5(x + y)$
- (D) $6xy$

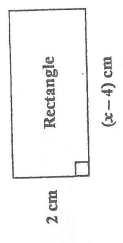
30. When 8 is subtracted from a certain number and the result is multiplied by 3 the final answer is 21. What is the original number?

- (A) 1
- (B) 3
- (C) 10
- (D) 15

25. If $5x - 26 = x + 50$, then the value of x is

- (A) -12
- (B) -6
- (C) 6
- (D) 19

Item 31 refers to the following diagram.



31. The area of the rectangle, in cm^2 , is x^2 . The equation that may be used to find the value of x is

- (A) $x^2 = 2(x - 4)$
- (B) $x^2 = (x - 2)(x - 4)$
- (C) $x^2 = 2(x - 4)(x - 2)$
- (D) $x^2 = (x - 4)(x + 2)$

26. $2(a^2b)^3 =$

- (A) $2a^6b^3$
- (B) $2a^2b^3$
- (C) $6a^2b^3$
- (D) $8a^2b^3$

27. $(x - 2)(3x + 4) =$

- (A) $3x^2 - 6x - 8$
- (B) $3x^2 - 2x - 8$
- (C) $3x^2 + 10x + 8$
- (D) $3x^2 - 10x + 8$

20. A company employs 12 gardeners at \$26 per day, and 8 clerks at \$17 per day. What is the mean daily wage, in dollars, of the 20 employees?

- (A) \$20.00
- (B) \$21.50
- (C) \$22.40
- (D) \$31.50

21. Mary invested \$200 for 3 years at 5% per annum. John invested \$300 at the same rate. If they both received the same amount of money in interest, for how many years did John invest his money?

- (A) $1\frac{1}{2}$
- (B) 2
- (C) 3
- (D) 10

22. Mr. Duncan bought a table at a discount of 30% thus saving \$42. What was the marked price of the table?

- (A) \$ 98
- (B) \$110
- (C) \$140
- (D) \$182

$-2(x - 4) =$

- (A) $-2x - 8$
- (B) $-2x - 4$
- (C) $-2x + 4$
- (D) $-2x + 8$

16. A dress which costs \$180 is being sold at a discount of 10%. The amount of the discount is

- (A) \$ 1.80
- (B) \$10.00
- (C) \$18.00
- (D) \$170.00

17. If the simple interest on \$800 for 3 years is \$54, what is the rate of interest per annum?

- (A) $\frac{4}{9}\%$
- (B) $2\frac{1}{4}\%$
- (C) $5\frac{1}{4}\%$
- (D) 44%

18. Tom bought a pen for \$60 and sold it to gain 20% on his cost price. How much money did he gain?

- (A) \$12
- (B) \$40
- (C) \$72
- (D) \$80

19. A salesman sells a car for \$11,000. If he is paid a commission of 4.5% for the first \$10,000 and 7.5% on the remainder, then the commission he receives is

- (A) \$ 495
- (B) \$ 525
- (C) \$ 825
- (D) \$1 320

32. 2500 millimetres expressed in metres is
- (A) 0.25
(B) 2.5
(C) 25
(D) 250
33. The volume of a cube with edge 10 cm is
- (A) 30 cm³
(B) 100 cm³
(C) 300 cm³
(D) 1000 cm³

35. The circumference of a circle is 132 cm. Given that $\pi = \frac{22}{7}$ the radius of the circle, in cm, is
- (A) 21
(B) $\sqrt{21}$
(C) 42
(D) $\sqrt{42}$

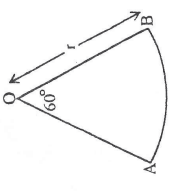
Item 34 refers to the figure below.

Item 36 refers to the diagrams below.

34. The figure above, not drawn to scale, shows a sector of a circle centre O. The length of the minor arc PQ is 8 cm. What would be the length of the circumference of the circle?
- (A) 16 cm
(B) 24 cm
(C) 48 cm
(D) 64 cm
36. Which of the following statements is true about the perimeters of the figures A and B?
- (A) Perimeter of A = Perimeter of B
(B) Perimeter of A > Perimeter of B
(C) Perimeter of A ≥ Perimeter of B
(D) Perimeter of A < Perimeter of B

37. A man leaves home at 22:15 hrs and reaches his destination at 04:00 hrs on the following day in the same time zone. How many hours did the journey take?
- (A) 5
(B) $5\frac{3}{4}$
(C) 6
(D) $6\frac{1}{4}$

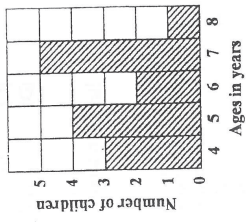
38. AOB is a sector of a circle with angle AOB = 60° and OB = r cm. What is the area, in cm², of the sector AOB?
- (A) $\frac{1}{6}\pi r^2$
(B) $\frac{1}{6}\pi r$
(C) $\frac{1}{3}\pi r^2$
(D) $\frac{1}{3}\pi r$



Item 38 refers to the diagram below.

40. The median of the numbers 1, 1, 5, 5, 6, 7, 7, 7, 8 is
- (A) 5.4
(B) 6
(C) 6.5
(D) 7

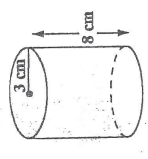
Item 41 refers to the bar chart below.



41. The bar chart shows the ages of children who took part in a survey.

- How many children took part in the survey?
- (A) 5
(B) 15
(C) 75
(D) 87

Item 39 refers to the diagram below.



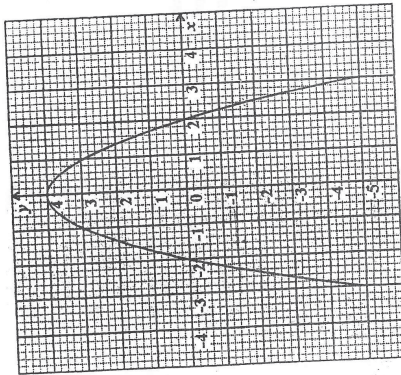
39. The diagram, not drawn to scale, shows a cylinder of radius 3 cm and height of 8 cm. The volume is
- (A) 12π cm³
(B) 48π cm³
(C) 72π cm³
(D) 192π cm³

42. A bag contains 60 marbles of different colours. The probability of choosing a red marble is $\frac{5}{12}$. How many red marbles does the bag contain?
- (A) 5
(B) 12
(C) 17
(D) 25

49. Which of the following represents the equation of a straight line?

- (A) $y = \frac{4}{x}$
- (B) $y = 2x + 3$
- (C) $y = x^2 - 4$
- (D) $y = x^2 + 2x - 5$

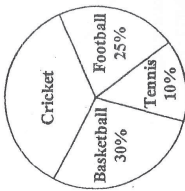
Item 50 refers to the graph below.



50. From the graph, the values of x when $y = -1$ are

- (A) 1 and -1
- (B) 2.2 and -2.2
- (C) 2.5 and -2.5
- (D) 2.8 and -2.8

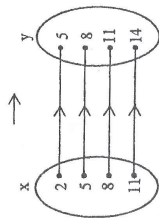
Item 43 refers to the diagram below.



43. The pie chart shows the popular games played at a school of 720 students. How many students play cricket?

- (A) 35
- (B) 120
- (C) 252
- (D) 300

46. The arrow diagram shows a function. Which of the following describes the function?



- (A) $y = 3x$
- (B) $x = 3y$
- (C) $y = x - 3$
- (D) $y = x + 3$

47. If $f(x) = 2x^2 - 1$, then $f(-3) =$

- (A) -32
- (B) -19
- (C) 17
- (D) 35

48. Which of the following line graphs represents $\{x: -2 < x \leq 4\}$?

- (A)
- (B)
- (C)
- (D)

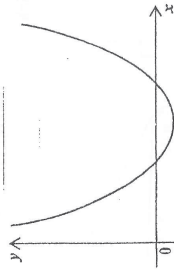
45. The mean of the following numbers is 15.

14, 10, 18, c , 21, 15, 14

The value of c is

- (A) 13
- (B) 14
- (C) 20
- (D) 91

Item 51 refers to the following diagram.

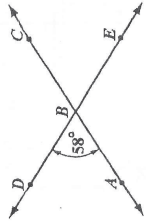


51. The diagram above shows a graph. If a is a positive constant, the equation of the graph could be

- (A) $y = ax^2 + c$
- (B) $y = c + ax^2$
- (C) $y = ax^2 + bx + c$
- (D) $y = c + bx - ax^2$

Item 52 refers to the diagram below.

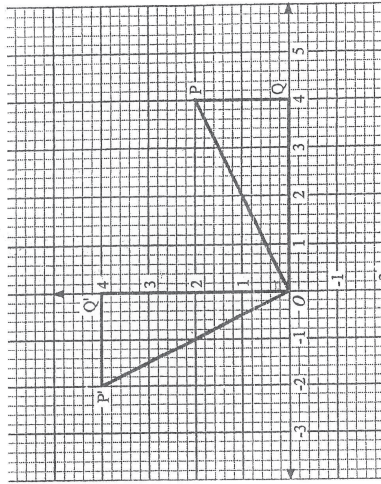
AC and DE are straight lines intersecting at B . Angle $DBA = 58^\circ$.



52. The measure of angle ABE is

- (A) 58°
- (B) 122°
- (C) 142°
- (D) 302°

Item 53 refers to the figure below.

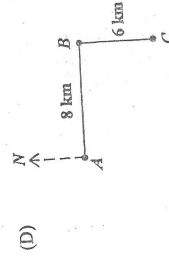
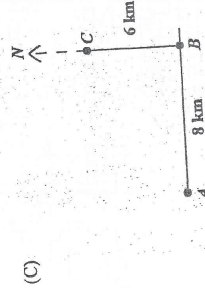
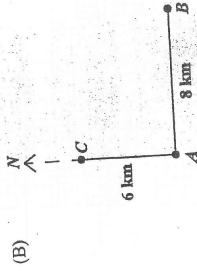
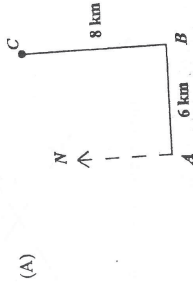


53. In the figure, $\triangle OPQ$ is mapped to $\triangle OP'Q'$. What type of transformation has taken place?

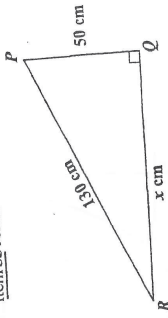
- (A) Reflection
- (B) Enlargement
- (C) Translation
- (D) Rotation

Item 55 refers to the diagram below.

54. A ship sailed 8 km due east from A to B. It then sailed 6 km due north to C. Which diagram below BEST represents the path of the ship?



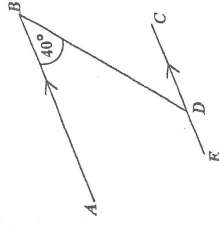
55. In the right-angled triangle, not drawn to scale, $\hat{Q} = 90^\circ$, $PQ = 50$ cm, $PR = 130$ cm, and $RQ = x$ cm.



Tan $\hat{P}RQ =$

- (A) $\frac{50}{x}$
- (B) $\frac{x}{50}$
- (C) $\frac{50}{130}$
- (D) $\frac{x}{130}$

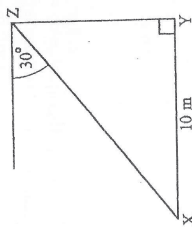
Item 56 refers to the diagram below.



56. AB is parallel to EC . What is the measure of $\angle BDE$?

- (A) 40°
- (B) 50°
- (C) 140°
- (D) 180°

Item 57 refers to the diagram below.



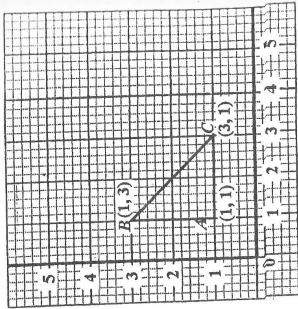
57. The diagram, not drawn to scale, shows the angle of depression of a point X from Z is 30° . If X is 10 metres from Y, the height YZ, in metres, is

- (A) $10 \tan 30^\circ$
- (B) $10 \sin 30^\circ$
- (C) $10 \cos 30^\circ$
- (D) $10 \csc 60^\circ$

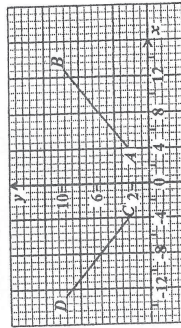
58. $A'B'C'$ is the image of ABC under an enlargement of scale factor 2. The area of $A'B'C'$, in square units, is

- (A) 2
- (B) 4
- (C) 8
- (D) 12

Item 58 refers to the following graph.



Item 59 refers to the figure below.



59. In the figure, the line CD is the image of AB after a

- (A) a rotation through 90° centre O
- (B) a reflection in the y-axis
- (C) a translation by vector $\begin{pmatrix} -4 \\ -8 \end{pmatrix}$
- (D) an enlargement of scale factor -1

60. In each of the diagrams shown below, A' is the image of A. Which of the diagrams shows a reflection in the x-axis?

(A)

(B)

(C)

(D)

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.