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1. In standard form 0.0325 is written as

(A) 3.25×10^{-3}
(B) 3.25×10^{-2}
(C) 3.25×10^{-1}
(D) 3.25×10^{2}

2. What percentage of 40 is 8?

(A) 5 %
(B) 20 %
(C) 32 %
(D) 150 %

3. 540 beads are shared in the ratio 4:5. The LARGER share of beads is

(A) 60
(B) 240
(C) 300
(D) 432

4. 18.96×2.03 correct to two significant figures equals

(A) 0.38
(B) 38
(C) 38.10
(D) 380

5. 0.45 written as a common fraction, in its simplest form, is

(A) $\frac{9}{20}$

(B) $\frac{4}{5}$

(C) $\frac{9}{10}$

(D) $\frac{5}{4}$

6. The EXACT value of $\frac{37.26 \div 1.8}{1\,000}$ is

(A) 0.207
(B) 0.0207
(C) 20.7000
(D) 20 700

7. $3.3 \times 2.5 + 5.7 \times 2.5 =$

(A) 8.25
(B) 9.00
(C) 13.25
(D) 22.50

8. 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

9. The LARGEST prime number that is less than 100 is

(A) 91
(B) 93
(C) 97
(D) 99

10. If $3n$ is an odd number, which of the following is an even number?

(A) $3n - 1$
(B) $3n + 2$
(C) $3n - 2$
(D) $3n + 2n$

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Item 11 refers to the following information.

P = {prime numbers}
Q = {odd numbers}
R = {even numbers}

11. Which of the following sets is empty?

(A) $P \cap R$
(B) $P \cup Q$
(C) $P \cap Q$
(D) $Q \cap R$

12. The set
$\{x : 6 \leq x < 10$, where x is an integer$\}$ is

(A) $\{6, 7, 8, 9\}$

(B) $\{6, 7, 8, 9, 10\}$

(C) $\{7, 8, 9\}$

(D) $\{7, 8, 9, 10\}$

13. If Q = {a, b, c} how many subsets can be obtained from the set Q?

(A) $2 + 3$
(B) 2×3
(C) 3^2
(D) 2^3

Item 14 refers to the following information.

$M = \{p, q, r\}$

$N = \{p, q\}$

14. Which of the following statements is TRUE?

(A) $M \subset N$

(B) $M \cup N = N$

(C) $M \cap N = \{\ \}$

(D) $M \cap N = N$

15. If TT$6.00 is equivalent to US$1.00, then TT$15.00 in US dollars is

(A) $0.25
(B) $0.40
(C) $2.50
(D) $4.00

16. The cost price of a refrigerator is $1850.00. A buyer who is given a discount of 5% for a cash purchase will pay

(A) $1942.50
(B) $1845.00
(C) $1757.50
(D) $1350.00

17. Tom bought a pen for $30 and sold it to gain 20% on his cost price. How much money did he gain?

(A) $ 6
(B) $20
(C) $36
(D) $40

18. A dinner at a restaurant was advertised at $60 plus 18% tax. The total bill for this dinner was

(A) $60.00
(B) $70.80
(C) $78.00
(D) $81.60

19. A television set costs $350 cash. When bought on hire-purchase, a deposit of $35 is required, followed by 12 monthly payments of $30. How much is saved by paying cash?

(A) $10
(B) $25
(C) $40
(D) $45

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20. The simple interest on a sum of money invested at 5% per annum for 3 years was \$90.

The sum of money invested was

(A) \$ 54
(B) \$ 150
(C) \$ 600
(D) \$1350

21. A woman buys a pair of shoes at a sale. She pays \$45, saving \$15 on the normal price. The percentage discount on the pair of shoes is

(A) 25
(B) 30
(C) $33\frac{1}{3}$
(D) 80

22. If the simple interest on \$900 for 3 years was \$108, what was the rate of interest?

(A) 3%
(B) 4%
(C) 12%
(D) 25%

23. $3x^2 \times 2x^3 =$

(A) $6x^5$
(B) $5x^5$
(C) $6x^6$
(D) $72x^5$

24. $\frac{1}{5x} + \frac{2}{3x} =$

(A) $\frac{3}{8x^2}$
(B) $\frac{3}{8x}$
(C) $\frac{13}{15x^2}$
(D) $\frac{13}{15x}$

25. Using the distributive law, $(p \times q) - (p \times r)$ is simplified to

(A) $-qr$
(B) $-2pqr$
(C) $p^2 - qr$
(D) $p(q - r)$

26. If $x = -2$, $y = 3$, $t = 2$, then $\left(\frac{x}{y}\right)^t =$

(A) $-\frac{4}{9}$
(B) $\frac{4}{9}$
(C) $\frac{4}{3}$
(D) $\frac{9}{4}$

27. If $p * q = 2p + q$, then $2 * 3$ is

(A) 5
(B) 7
(C) 8
(D) 9

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28. If $5(2x - 1) = 35$, then $x =$

(A) -4

(B) $\frac{1}{4}$

(C) 3

(D) 4

29. What is the value of $\frac{x^2 + 3y}{xy}$, if $x = 4$ and $y = 2$?

(A) $1\frac{3}{4}$

(B) $2\frac{1}{2}$

(C) $2\frac{3}{8}$

(D) $2\frac{3}{4}$

30. When 6 is added to a number and the sum is divided by three, the result is four. This statement written in mathematical symbols is

(A) $\frac{6+x}{3}=4$

(B) $\frac{6}{3}+x=4$

(C) $\frac{6+x}{3}=\frac{4}{3}$

(D) $6+\frac{x}{3}=4$

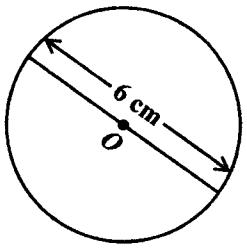
31. When 5 is added to a certain number and the result is multiplied by 3 the final answer is 27. What is the **original** number?

(A) 4
(B) 12
(C) 14
(D) 19

32. 3 800 millimetres expressed in metres is

(A) 0.38
(B) 3.8
(C) 38
(D) 380

Item 33 refers to the following diagram.



33. The circle shown in the diagram, **not drawn to scale**, has a centre at O. The area of the circle, in cm^2, is

(A) 6π
(B) 9π
(C) 12π
(D) 36π

34. 10 800 seconds expressed in hours is

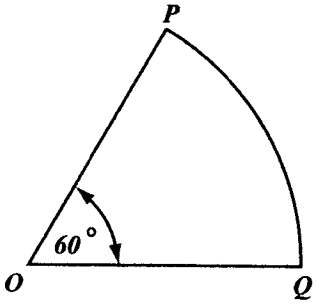
(A) 3
(B) 18
(C) 30
(D) 180

35. The volume, in cm^3, of a cube of edge 3 cm is

(A) 9
(B) 18
(C) 27
(D) 54

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Item **36** refers to the following diagram.



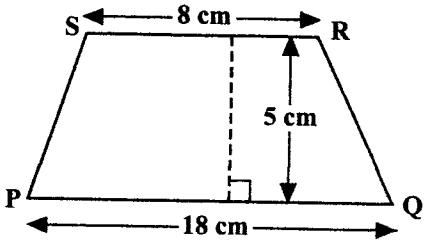
36. The figure above, not drawn to scale, shows a sector of a circle centre O. The length of the minor arc PQ is 8 cm. What is the length of the circumference of the circle?

(A) 16 cm
(B) 24 cm
(C) 48 cm
(D) 64 cm

37. A man started a journey at 09:30 h and arrived at his destination, in the same time zone, at 13:30 h on the same day. If his average speed was 30 km/h, then the distance, in km, for the journey was

(A) 120
(B) 133
(C) 400
(D) 430

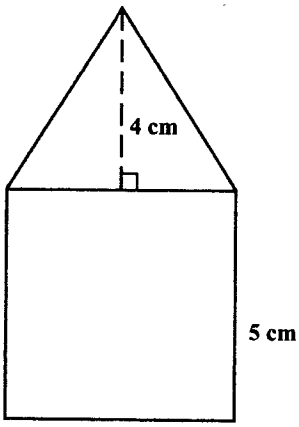
Item **38** refers to the following diagram.



38. The area of the trapezium PQRS above is

(A) 45 cm²
(B) 65 cm²
(C) 90 cm²
(D) 130 cm²

Item **39** refers to the following diagram.



39. The diagram above, **not drawn to scale**, consists of a triangle resting on a square of side 5 cm. The height of the triangle is 4 cm.

What is the TOTAL area of the figure?

(A) 35 cm²
(B) 45 cm²
(C) 50 cm²
(D) 100 cm²

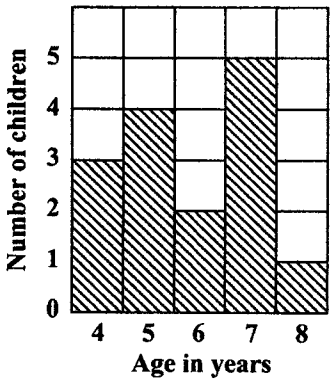
40. The score which occurs most frequently in a distribution is defined as the

(A) median
(B) mean
(C) range
(D) mode

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Item **41** refers to the following bar chart.



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 **42** refers to the eight scores below.

10 15 4 7

8 8 1 4

42. The median of the scores presented above is

(A) 4
(B) 7.25
(C) 7.50
(D) 8

43. In a class of 20 students, 12 are girls. What is the probability that a student chosen at random is a boy?

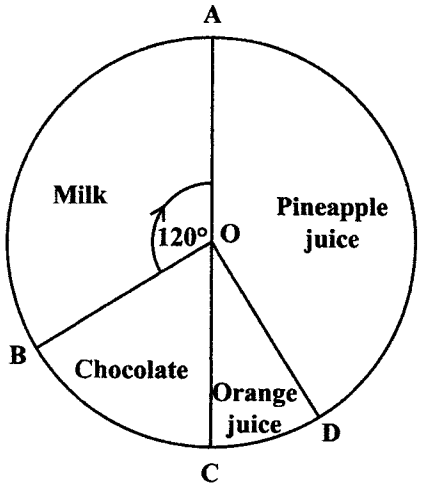
(A) $\frac{1}{20}$

(B) $\frac{8}{20}$

(C) $\frac{12}{20}$

(D) $\frac{8}{12}$

Item **44** refers to the following diagram.



44. The piechart above shows the preference in drinks of a group of students. Each student may select only one drink.

If 12 students prefer chocolate, then the TOTAL number of students is

(A) 48
(B) 72
(C) 180
(D) 360

45. If the mean of the numbers $2x$, $3x$, $4x$ and $3x$ is 12, then the sum of the numbers is

(A) 4
(B) 12
(C) 48
(D) 80

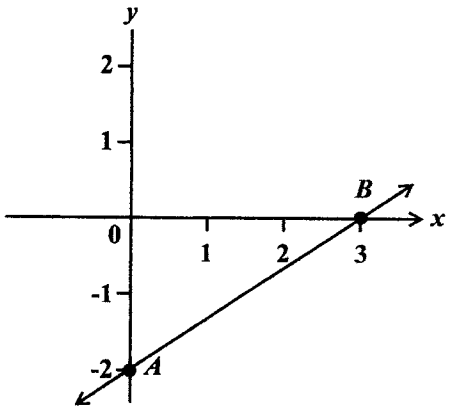
46. The equation of the line which passes through the point (0,5) and has a gradient of 4 is

(A) $y = 4x$
(B) $y = 5x$
(C) $y = 4x + 5$
(D) $y = 5x + 4$

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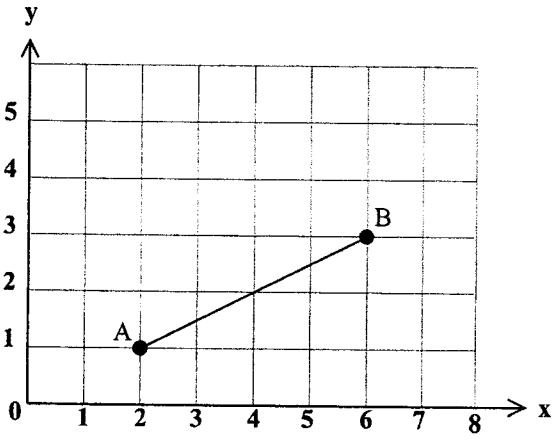
Item **47** refers to the following graph.



47. The straight line AB cuts the y axis at

(A) (0, 3)
(B) (0, 2)
(C) (3, –2)
(D) (0, –2)

Item **48** refers to the following graph.



48. The gradient of AB in the graph above is

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

49. If $f(x) = x^2 - x - 1$, then $f(-5) =$

(A) 19
(B) 24
(C) 29
(D) 31

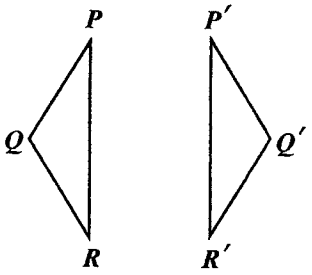
50. What is the gradient of the straight line $2y = -3x - 8$?

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

51. The range of $f{:}x \rightarrow x^5$ for the domain $\{-2, -1, 0, 1, 2\}$ is

(A) {32, 1, 0, 1, 32}
(B) {10, 5, 0, 5, 10}
(C) {–10, –3, 0, 3, 10}
(D) {–32, –1, 0, 1, 32}

Item **52** refers to the following diagram.



52. What transformation maps PQR onto $P'Q'R'$?

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

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53. The image of a point P(1, 2) under a translation is P′ (–5, –4). What is the translation vector?

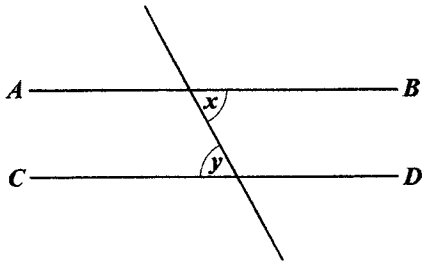
(A) $\begin{pmatrix} -6 \\ -6 \end{pmatrix}$

(B) $\begin{pmatrix} -4 \\ -2 \end{pmatrix}$

(C) $\begin{pmatrix} 4 \\ 2 \end{pmatrix}$

(D) $\begin{pmatrix} 6 \\ 6 \end{pmatrix}$

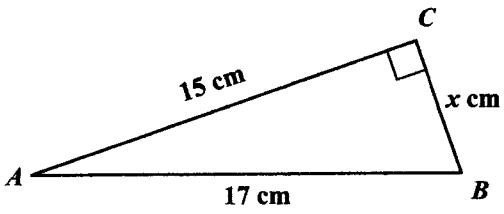
Item **54** refers to the following diagram.



54. In the diagram *AB* and *CD* are parallel. Which of the following BEST describes the relation between *x* and *y*?

(A) $x = y$
(B) $x > y$
(C) $x + y > 2x$
(D) $x + y < 2x$

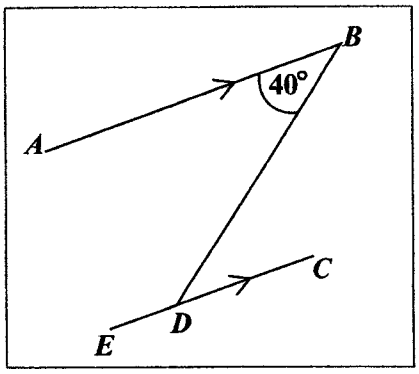
Item **55** refers to triangle *ABC* below.



55. In the triangle *ABC*, **not drawn to scale**, *AB* is 17 cm, *AC* is 15 cm, *BC* is *x* cm and angle *BCA* is 90°. The value of *x* is

(A) 7
(B) 8
(C) 9
(D) 12

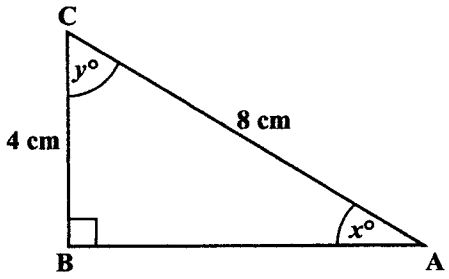
Item **56** refers to the following diagram.



56. In the diagram, *AB* is parallel to *EC*. The measure of $<BDE$ is

(A) 40°
(B) 50°
(C) 140°
(D) 180°

Item **57** refers to the diagram below.



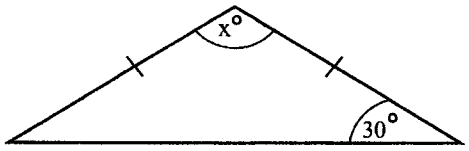
57. In the right-angled triangle above, which trigonometric ratio is equal to $\frac{4}{8}$?

(A) $\sin x$
(B) $\tan y$
(C) $\cos x$
(D) $\tan x$

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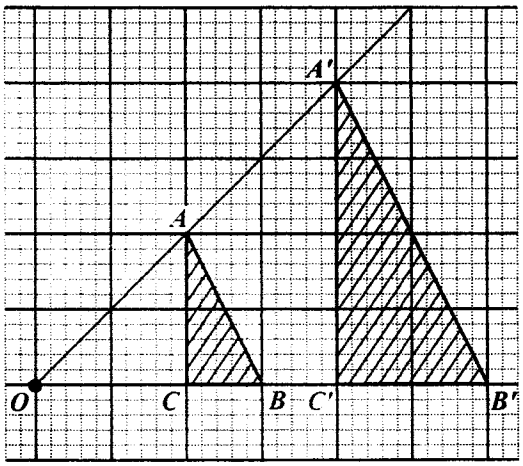
Item **58** refers to the following diagram.



58. In the isosceles triangle shown above, the value of x is

(A) 30
(B) 60
(C) 120
(D) 150

Item **59** refers to the following diagram.



59. OAA', OBB' and OCC' are straight lines. ΔABC is mapped onto $\Delta A'B'C'$ by an enlargement with centre O. What is the scale factor of the enlargement?

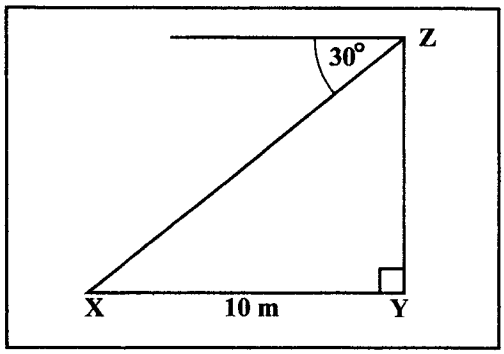
(A) $\frac{1}{2}$

(B) $-\frac{1}{2}$

(C) 2

(D) -2

Item **60** refers to the following diagram.



60. The diagram above, **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 of YZ, in metres, is

(A) 10 tan 30°
(B) 10 sin 30°
(C) 10 cos 30°
(D) 10 cos 60°

END OF TEST

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