1. $(-3)^2 + (-2)^2$ is equal to

(A) -13
(B) -10
(C) 13
(D) 25

2. What percentage of 40 is 8?

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

3. If $235 \times 48.7 = 11\,444.5$, then

$23.5 \times 0.487 =$

(A) 11.4445
(B) 114.445
(C) 1 144.45
(D) 11 444.4

4. Using the distributive property,

$49 \times 17 + 49 \times 3 =$

(A) 49×20
(B) $49 + 20$
(C) 52×66
(D) $52 + 66$

5. A test was marked out of 80. A boy scored 60% of the marks on the test. How many marks did he score?

(A) 20
(B) 48
(C) 60
(D) 75

6. Dan sold 40 concert tickets in 5 days. Each day he sold 3 tickets MORE than the previous day. The number of tickets he sold on the third day is

(A) 8
(B) 9
(C) 10
(D) 11

7. Which of the following sets is defined by $\{x \in Z: -2 \leq x \leq 4\}$?

(A) $\{1, 2, 3, 4\}$
(B) $\{0, 1, 2, 3, 4\}$
(C) $\{-1, 0, 1, 2, 3\}$
(D) $\{-2, -1, 0, 1, 2, 3, 4\}$

8. 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

9. The set of positive integers is an example of

(A) a finite set
(B) an empty set
(C) an infinite set
(D) an improper set

10. If $n(U) = 25$, $n(A) = 14$, $n(B) = 15$ and $n(A \cap B) = 6$, then $n(A \cup B)$ is

(A) 2
(B) 19
(C) 23
(D) 29

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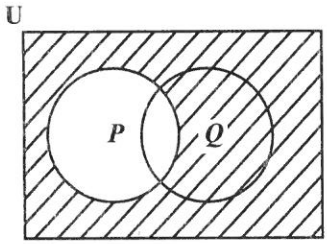
Item **11** refers to the following Venn diagram.

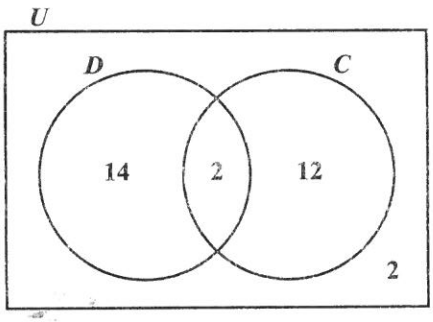


11. The shaded region represents

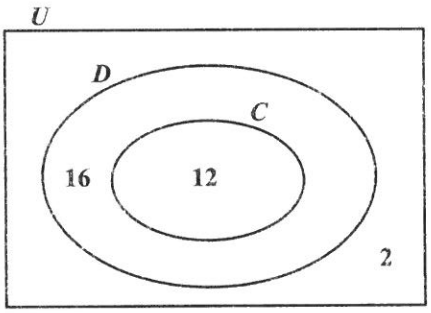
(A) P'
(B) $(P \cup Q)'$
(C) $P \cup Q'$
(D) $Q \cap P'$

12. The 30 students in Teacher May's class have either a dog or a cat or none of the two. Sixteen students have a dog (D), 12 students have a cat (C) and the remainder have neither a cat nor a dog. Which of the Venn diagrams below correctly represents this information?

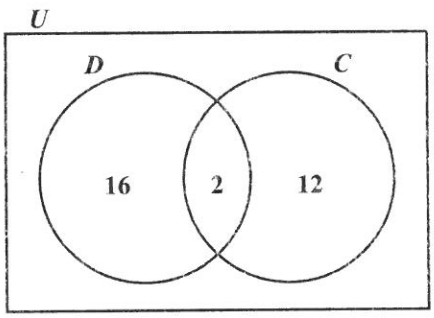
(A)



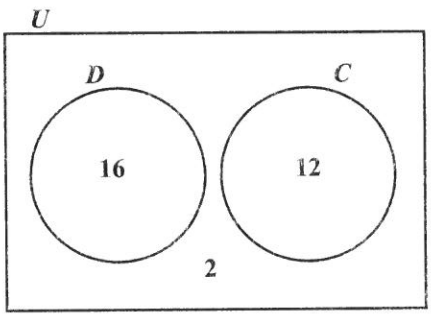
(B)



(C)



(D)



13. At a bank, EC$2.60 is equivalent to US$1.00. For every US$1.00 exchanged, EC$0.10 is deducted as an exchange fee. How much EC dollars will Leon receive if he exchanges US$100.00?

(A) $ 90.90
(B) $ 236.34
(C) $ 250.00
(D) $ 260.00

14. If $7 000 is borrowed at the rate of 5% per annum for 3 years, the simple interest is

(A) $ 105
(B) $ 210
(C) $ 370
(D) $1 050

15. A dress which costs $180.00 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

16. An article bought for $125 was sold for $175. The profit as a percentage of the cost price was

(A) 28.6
(B) 40
(C) 50
(D) 71.4

17. The value of a plot of land is $18 000. Land tax is charged at the rate of $0.70 per $100 value. What is the TOTAL amount of tax paid for the land?

(A) $100.70
(B) $110.00
(C) $126.00
(D) $180.70

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

(A) 4%
(B) 8%
(C) 12%
(D) 25%

19. At the end of any year a car is worth 5% less than what it was worth at the beginning of the year. If a car is worth $9 500 in December 2016, then its value in January 2016 was

(A) $ 9 995
(B) $10 000
(C) $10 025
(D) $12 000

20. A man's regular pay is $3 per hour up to 40 hours. Overtime is twice the payment for regular time. If he was paid $216, how many hours of overtime did he work?

(A) 8
(B) 16
(C) 28
(D) 48

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21. $\frac{1}{5x} + \frac{2}{3x}$ is equal to

(A) $\frac{3}{8x^2}$

(B) $\frac{3}{8x}$

(C) $\frac{13}{15x^2}$

(D) $\frac{13}{15x}$

22. Seven times the product of two numbers, a and b, may be written as

(A) $7ab$
(B) $49ab$
(C) $7a + b$
(D) $7(a + b)$

23. 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) $2\frac{3}{4}$

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

(A) -4

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

(C) 3

(D) 4

25. John has x marbles and Max has twice as many marbles as John. Max gives John 5 of his marbles. How many marbles does John now have?

(A) $x - 5$
(B) $x + 5$
(C) $2x - 5$
(D) $2x + 5$

26. If $a = 3$ and $ab = 6$, then $a^2 - b^2 =$

(A) 1
(B) 2
(C) 5
(D) 13

27. If $A = \begin{pmatrix} 1 & 2 & 5 & 4 \\ 6 & 1 & 3 & 7 \\ -2 & 3 & 2 & 9 \end{pmatrix}$, then the order of A is

(A) 2×3
(B) 3×2
(C) 3×4
(D) 4×3

28. The determinant of the identity matrix is

(A) one
(B) zero
(C) undefined
(D) negative one

29. If the vectors **p** and **q** are $\begin{bmatrix} 3 \\ 2 \end{bmatrix}$ and $\begin{bmatrix} -1 \\ 4 \end{bmatrix}$ respectively, then **p** – 2**q** is

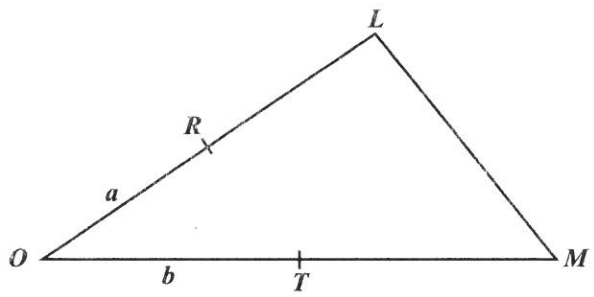
(A) $\begin{bmatrix} 1 \\ 10 \end{bmatrix}$

(B) $\begin{bmatrix} 1 \\ -6 \end{bmatrix}$

(C) $\begin{bmatrix} 5 \\ 10 \end{bmatrix}$

(D) $\begin{bmatrix} 5 \\ -6 \end{bmatrix}$

Item **30** refers to the following diagram of triangle *OLM*, in which *R* is the midpoint of *OL* and *T* the midpoint of *OM*. Further, $\overrightarrow{OR} = \mathbf{a}$ and $\overrightarrow{OT} = \mathbf{b}$.



30. $\overrightarrow{RM}$, expressed in terms of **a** and **b**, is

(A) $2b - a$
(B) $a + 2b$
(C) $2(b - a)$
(D) $2(a + b)$

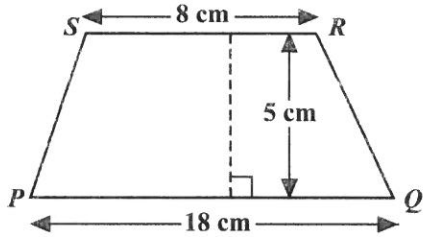
31. Given that 1 millimetre = $\frac{1}{1000}$ metres, 2 500 millimetres, in metres, is

(A) 0.25
(B) 2.5
(C) 25
(D) 250

32. How many kilograms are there in one tonne?

(A) 10
(B) 100
(C) 1 000
(D) 10 000

Item **33** refers to the following diagram of a trapezium, *PQRS*.



33. The area of the trapezium, *PQRS*, is

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

34. At a party, a number of guests were served 15 litres of champagne. Each guest had 2 glasses of champagne and each glass held 150 millilitres. Assuming no spillage, how many guests were at the party?

(A) 10
(B) 75
(C) 50
(D) 100

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35. The perimeter of a square is 56 cm. What is its area, in cm^2?

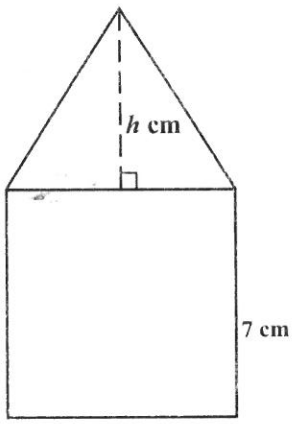
(A) 28
(B) 78
(C) 169
(D) 196

36. The circumference of a circle is 154 cm.

Given that $\pi = \frac{22}{7}$, the diameter of the circle, in cm, is

(A) 7
(B) 24.5
(C) 49
(D) 54

Item 37 refers to the following diagram which consists of a triangle resting on a square of side 7 cm.



37. If the TOTAL area of the diagram is 63 cm^2, what is the value of h, the height of the triangle?

(A) 2 cm
(B) 4 cm
(C) 5 cm
(D) 9 cm

38. On leaving Trinidad, the time on a pilot's watch was 23:00 h. When he arrived at his destination in the same time zone on the next day, his watch showed 03:00 h. How many hours did the flight take?

(A) 4
(B) 16
(C) 20
(D) 26

39. Ms Clarke arranged the 15 test scores of her students in order of size and selected the 8th score for reporting purposes. Which of the following statistical measures did Ms Clarke obtain?

(A) Mean
(B) Mode
(C) Range
(D) Median

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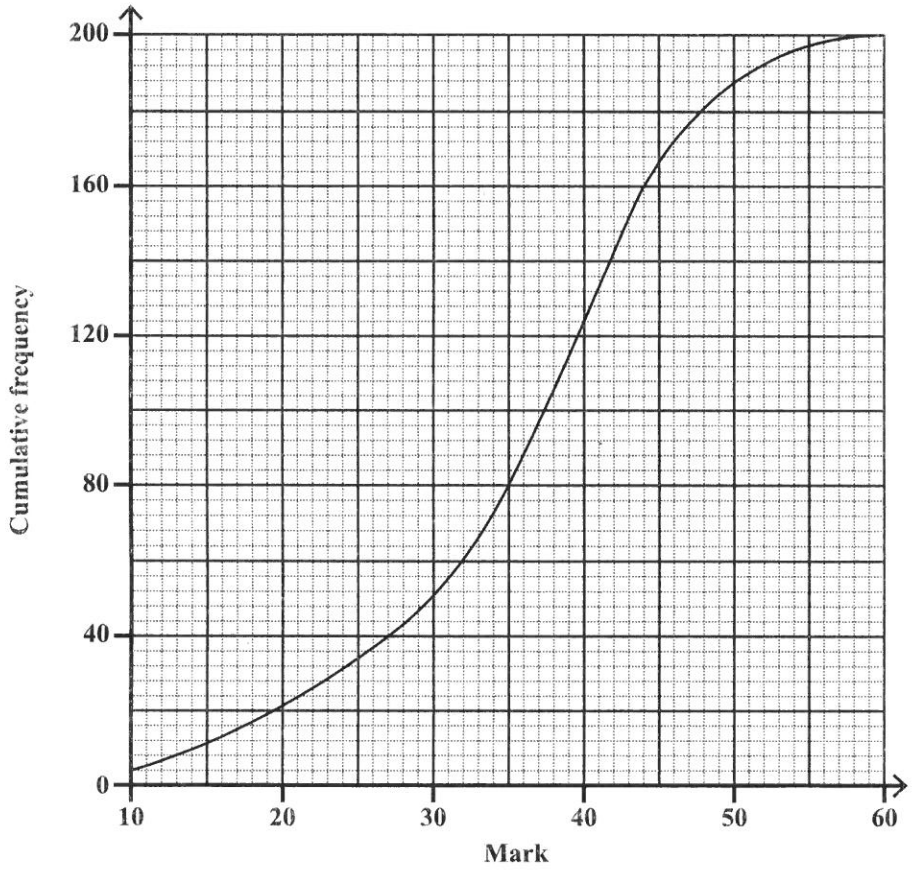
Items **40–41** refer to the following diagram which shows the cumulative frequency curve based on the marks of 200 students who took a driving test.



40. The median mark scored by the 200 students is

(A) 30.0
(B) 37.5
(C) 40.0
(D) 100.0

41. The highest mark scored in the test was

(A) 50
(B) 60
(C) 180
(D) 200

42. In a box, there are 8 red, 7 blue and 6 green marbles. One marble is picked up randomly. What is the probability that it is neither blue nor green?

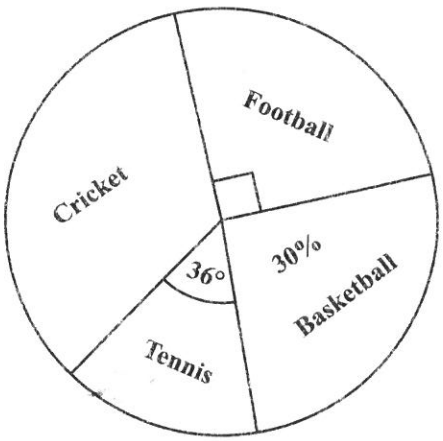
(A) $\frac{8}{21}$

(B) $\frac{3}{7}$

(C) $\frac{9}{22}$

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

Item **43** refers to the following pie chart which shows the popular games played by 720 students.



43. How many students played cricket?

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

Item **44** refers to the following two-way table, which shows the mode of transportation to school on a particular day, for a group of 200 students.

	Bus	**Taxi**	**Walk**	**Total**
Male	30	50	28	108
Female	44	16	32	92
Total	74	66	60	200

44. A male student is picked at random from the group. What is the probability that he does NOT walk to school on that day?

(A) $\frac{2}{5}$

(B) $\frac{13}{18}$

(C) $\frac{20}{27}$

(D) $\frac{7}{10}$

45. The point where a linear function crosses the horizontal axis is

(A) the y-intercept
(B) the x-intercept
(C) always positive
(D) always negative

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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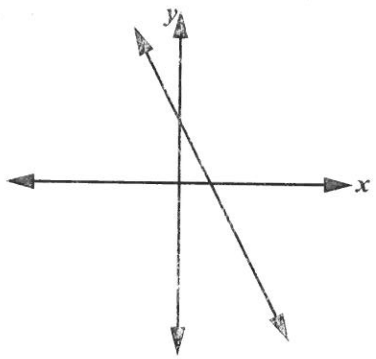
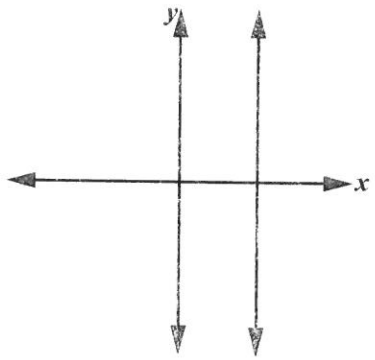
47. Which of the following graphs represents a linear function?

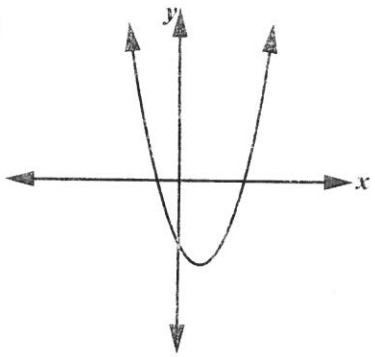
(A)



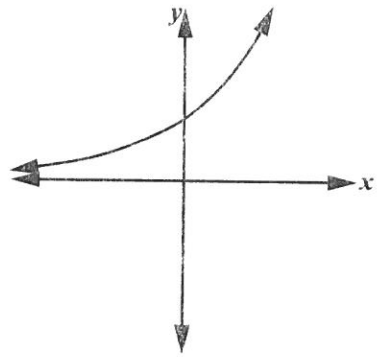
(B)



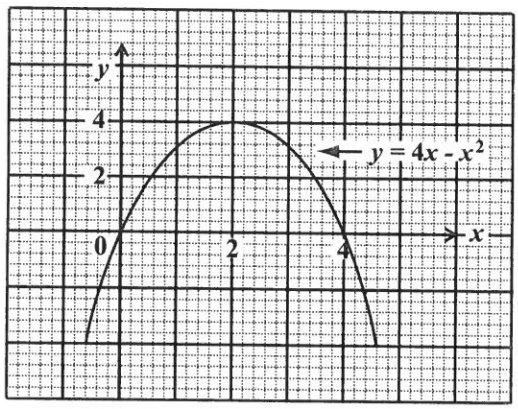
(C)



(D)



Item **48** refers to the following graph of a quadratic function.



48. The coordinates of the turning point of the function $y = 4x - x^2$ are

(A) (4, 4)
(B) (0, 4)
(C) (4, 2)
(D) (2, 4)

49. A line L is parallel to the line

$$3x - 7y - 9 = 0.$$

What is the gradient of the line L?

(A) $-\frac{7}{3}$

(B) $-\frac{9}{7}$

(C) $\frac{3}{7}$

(D) $\frac{7}{3}$

50. If $g(x) = \frac{7x - 3}{5}$, then $g(-6) =$

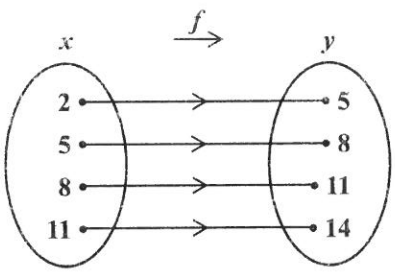
(A) -9

(B) $-\frac{39}{5}$

(C) $\frac{39}{5}$

(D) 9

Item **51** refers to the following arrow diagram which shows a function, f.



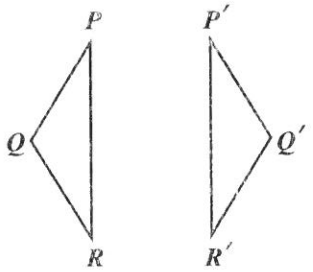
51. Which of the following BEST describes the function?

(A) $y = x + 3$
(B) $x + y = 3$
(C) $x = y + 3$
(D) $y = 2x + 1$

52. The range of $f: x \rightarrow x^3$ for the domain $\{-2, -1, 0, 1, 2\}$ is

(A) $\{8, 1, 0, 1, 8\}$
(B) $\{6, 3, 0, 3, 6\}$
(C) $\{-6, -3, 0, 3, 6\}$
(D) $\{-8, -1, 0, 1, 8\}$

Item **53** refers to the following diagram of a transformation.



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

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

54. In which of the following polygons does the sum of the measures of the interior angles equal the sum of the measures of the exterior angles?

(A) Triangle
(B) Hexagon
(C) Pentagon
(D) Quadrilateral

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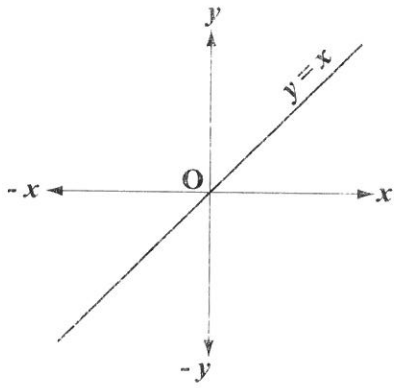
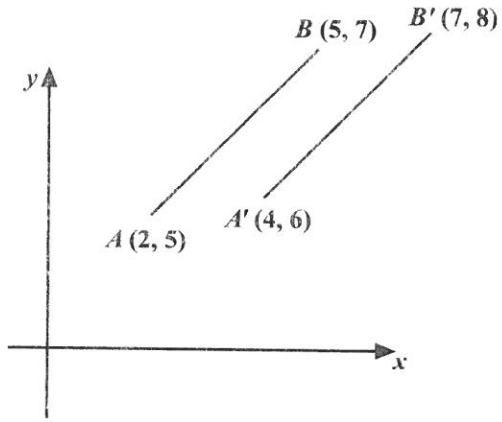
Item **55** refers to the following diagram of the straight line $y = x$.



55. What is the image of the line $y = x$ when it is rotated anticlockwise about O through an angle of 90°?

(A) $y = 0$
(B) $x = 0$
(C) $y = x$
(D) $y = -x$

Item **56** refers to the following diagram of a translation.



56. In the diagram, the translation by which AB is mapped onto $A'B'$ is represented by

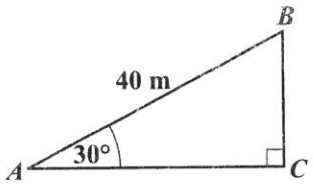
(A) $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$

(B) $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$

(C) $\begin{bmatrix} 3 \\ 2 \end{bmatrix}$

(D) $\begin{bmatrix} 5 \\ 3 \end{bmatrix}$

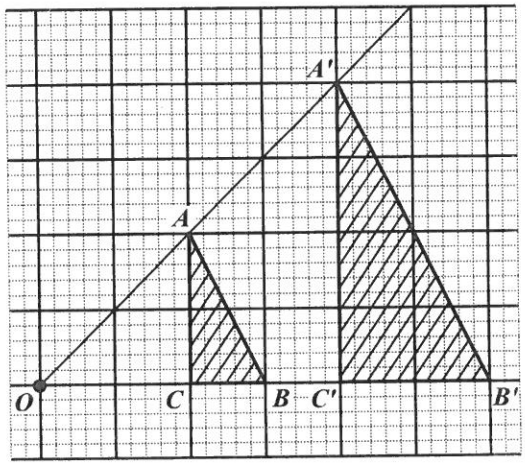
Item **57** refers to the following right-angled triangle, ABC.



57. In the triangle, angle $BAC = 30°$ and $AB = 40$ m. The length BC, in metres, is

(A) $40 \sin 30°$
(B) $40 \tan 30°$
(C) $40 \sin 60°$
(D) $40 \tan 60°$

Item **58** refers to the following diagram of an enlargement.



58. OAA', OBB' and OCC' are straight lines. $\Delta\ ABC$ 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

59. A plane is flying in a direction of 045° and changes course in a clockwise direction to 135°. The angle through which the plane turns is

(A) 45°
(B) 90°
(C) 135°
(D) 270°

60. In a triangle, PQR, angle $P = x°$ and angle $Q = 2x°$. What is the size of angle R?

(A) 60°

(B) 45°

(C) $\left(\frac{180}{3x}\right)$

(D) $(180° - 3x°)$

END OF TEST

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