Popular Past Paper One Questions Part 3

Instructions

Please answer **all 60 multiple-choice questions** in this quiz.

When you are finished, click **Submit**. Your results will appear immediately, along with the **correct answers** so you can review your work and learn from any mistakes.

Good luck!

dextrazeit@gmail.com Switch account

Not shared

* Indicates required question

Full Name *

Your answer

Name of School *

Your answer

Region *

Choose

1. * 1 point

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?

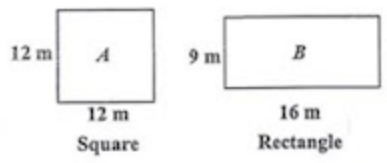
(A) Mean
(B) Mode
(C) Range
(D) Median

- A
- B
- C
- D

2. *

1 point

Item 31 refers to the following diagrams of a square and a rectangle.



Which of the following statements is true about the perimeter of the square and the rectangle?

(A) Perimeter of A = Perimeter of B
(B) Perimeter of A > Perimeter of B
(C) Perimeter of $A \geq$ Perimeter of B
(D) Perimeter of $A <$ Perimeter of B

- A
- B
- C
- D

3. *

1 point

The lengths of the sides of a triangle are x, $2x$ and $2x$ centimetres. If the perimeter is 20 centimetres, what is the value of x?

(A) 4
(B) 5
(C) 8
(D) 10

- A
- B
- C
- D

4. *

1 point

How many kilograms are there in one tonne?

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

- A
- B
- C
- D

5. * 1 point

The area of a triangle is 60 cm² and its base is 12 cm. What is the perpendicular height, in cm, of the triangle?

(A) 5
(B) 10
(C) 13
(D) 17

- A
- B
- C
- D

6. * 1 point

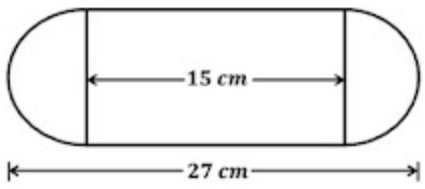
If it took a speedboat 9 hours to travel a distance of 1 080 km, what was its average speed, in kmh^{-1}?

(A) 12
(B) 102
(C) 120
(D) 1 200

- A
- B
- C
- D

7. * 1 point

Item 36 refers to the following diagram which shows a compound shape made up of a rectangle and two identical semi-circles, one on either of the short sides.



The area of the compound shape above, in terms of π, is

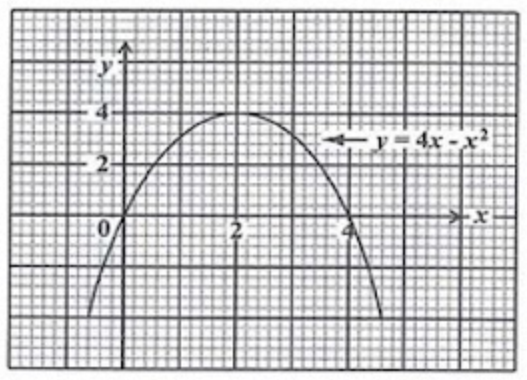
(A) $6(9 + \pi)$
(B) $36(5 + \pi)$
(C) $6(5 + 2\pi)$
(D) $18(5 + 2\pi)$

- A
- B
- C
- D

8. *

1 point

Items 50 refer to the following graph of a function.



The values of x for which $y = 4x - x^2$ intersects $y = 0$ are

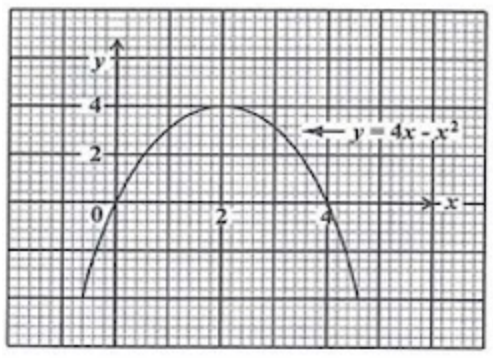
(A) $x = 0$ and $x = 4$
(B) $x = 0$ and $x = 2$
(C) $x = 0$ and $x = -4$
(D) $x = 2$ and $x = 4$

- A
- B
- C
- D

9. *

1 point

Item 51 refer to the following graph of a function.



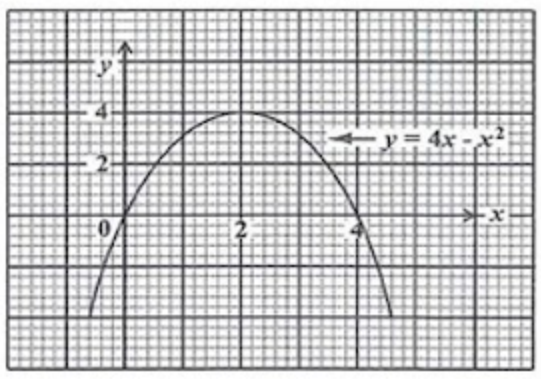
The coordinates of the turning point of $y = 4x - x^2$ are

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

- A
- B
- C
- D

10. * 1 point

Item 50 refers to the following graph of a quadratic function.



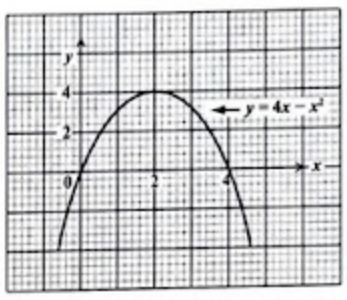
The maximum point of $y = 4x - x^2$ is

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

- A
- B
- C
- D

11. * 1 point

Items 48 refer to the following graph of a quadratic function.



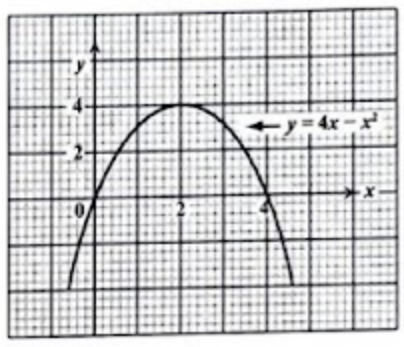
The coordinates of the maximum point of the function $y = 4x - x^2$ are

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

- A
- B
- C
- D

12. * 1 point

Item **49** refer to the following graph of a quadratic function.



The equation of the axis of symmetry of the quadratic function is

(A) $x = 2$

(B) $y = 2$

(C) $y = x$

(D) $y = 2x$

- A
- B
- C
- D

13. * 1 point

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

(A) -3

(B) $\frac{-3}{2}$

(C) 2

(D) 3

- A
- B
- C
- D

14. * 1 point

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

(A) 2

(B) 3

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

(D) -4

- A
- B
- C
- D

15. * 1 point

A line L is perpendicular to the line

$$y = \frac{3}{7}x - 9.$$

What is the gradient of the line L?

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

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

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

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

- A
- B
- C
- D

16. * 1 point

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

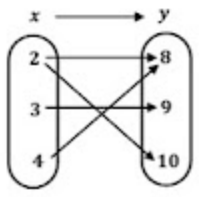
(C) $\frac{3}{7}$

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

- A
- B
- C
- D

17. * 1 point

Item 47 refers to the following arrow diagram.



The arrow diagram above describes the relation

(A) y is less than x

(B) x is a factor of y

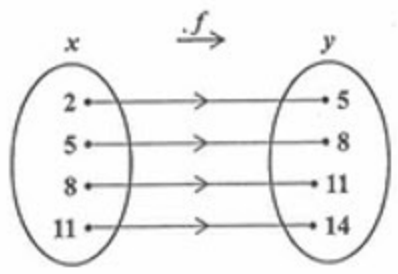
(C) y is a factor of x

(D) x is a multiple of y

- A
- B
- C
- D

18. * 1 point

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



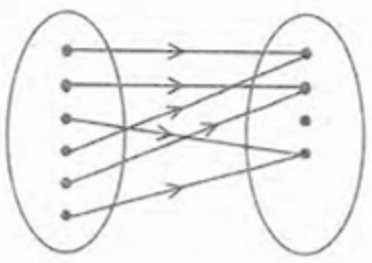
Which of the following equations BEST describes the function?

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

- A
- B
- C
- D

19. * 1 point

Item 46 refers to the following mapping diagram.



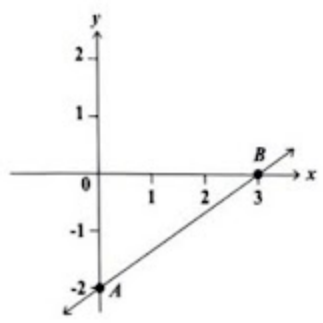
The relationship that BEST describes the mapping in the diagram is

(A) one-to-one
(B) one-to-many
(C) many-to-one
(D) many-to-many

- A
- B
- C
- D

20. 1 point

Item 46 refer to the following graph of the straight line AB.



The point where the straight line AB crosses the horizontal axis is

(A) $(3, 0)$

(B) $(0, 3)$

(C) $(0, -2)$

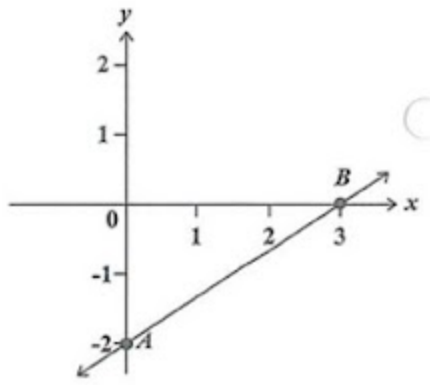
(D) $(3, -2)$

- A
- B
- C
- D

21. *

1 point

Item 47 refers to the following graph of a straight line.



The straight line AB cuts the y axis at

(A) $(0, 3)$
(B) $(0, 2)$
(C) $(3, -2)$
(D) $(0, -2)$

- A
- B
- C
- D

22. *

1 point

Item 44 refers to the following two-way table, which shows the ways in which 200 students in a group are transported to school on a particular day.

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

A student is picked at random from the group. What is the probability that the student is a male who travelled to school by taxi on that day?

(A) $\frac{1}{4}$
(B) $\frac{25}{54}$
(C) $\frac{25}{33}$
(D) $\frac{33}{50}$

- A
- B
- C
- D

23. *

1 point

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

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) $\frac{7}{10}$

- A
- B
- C
- D

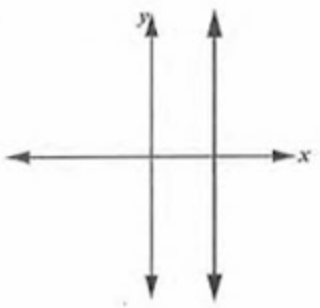
24. *

1 point

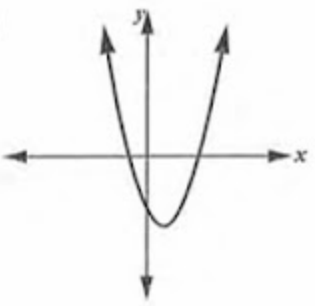
Which of the following graphs represents a linear function?

(A)

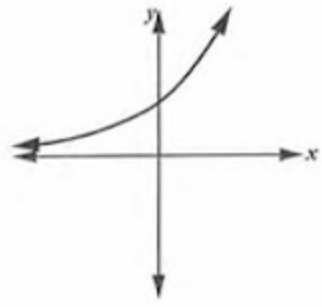
(B)



(C)



(D)



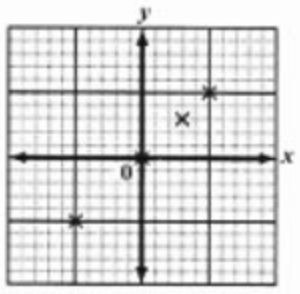
- A
- B
- C
- D

25. *

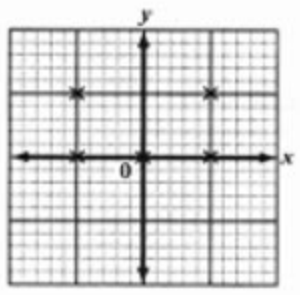
1 point

Which of the following represents the graph of a function?

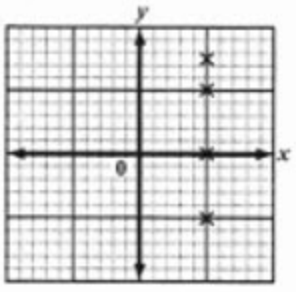
(A)



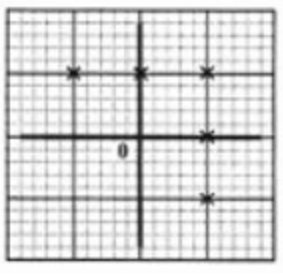
(B)



(C)



(D)

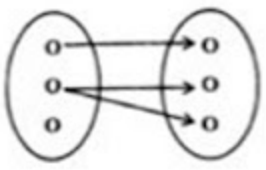


- A
- B
- C
- D

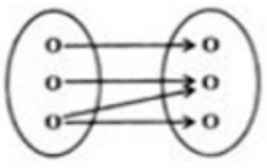
26. * 1 point

Which of the following diagrams BEST illustrates a function?

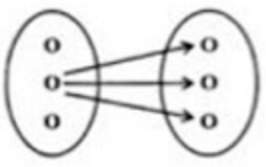
(A)



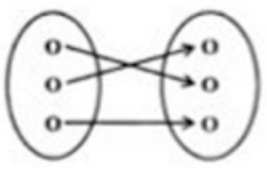
(B)



(C)



(D)



- A
- B
- C
- D

27. * 1 point

The point where a linear function crosses the vertical axis is

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

- A
- B
- C
- D

28. * 1 point

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

- A
- B
- C
- D

29. * 1 point

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) $\frac{2}{3}$

- A
- B
- C
- D

30. *

1 point

When three coins are tossed simultaneously, the possible outcomes are {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT}, where H represents a head and T represents a tail.

What is the probability of randomly obtaining at LEAST TWO heads?

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

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

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

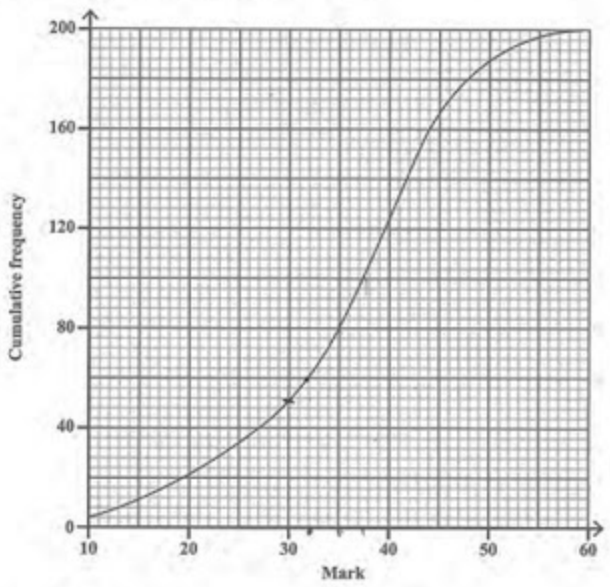
(D) $\frac{2}{3}$

- A
- B
- C
- D

31. *

1 point

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



The median mark scored by the 200 students is

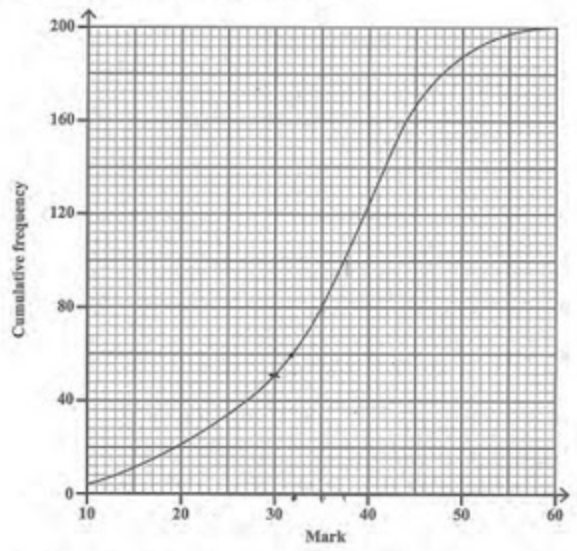
(A) 30.0
(B) 37.5
(C) 40.0
(D) 100.0

- A
- B
- C
- D

32. *

1 point

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



The highest mark scored in the test was

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

- A
- B
- C
- D

33.

1 point

Six hundred students write an examination.
The probability of a randomly selected student failing the examination is $\frac{1}{5}$.

How many students are expected to **pass**?

(A) 120
(B) 480
(C) 500
(D) 600

- A
- B
- C
- D

34. * 1 point

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) $y = 5x + 4$

- A
- B
- C
- D

35. * 1 point

. If $h(x) = \frac{3x-2}{5}$, then $h(4) =$

(A) -4

(B) $\frac{-14}{5}$

(C) 2

(D) $\frac{14}{5}$

- A
- B
- C
- D

36. * 1 point

. What is the value of $f^{-1}(1)$, if the function f is given as $f: x \to 5 - 2x$?

(A) 1

(B) 2

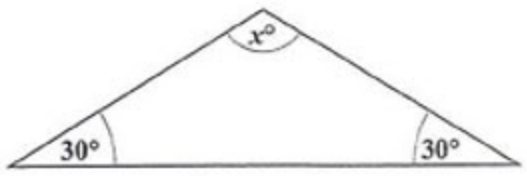
(C) 3

(D) 7

- A
- B
- C
- D

37. * 1 point

Item 55 refers to the following diagram of an isosceles triangle.



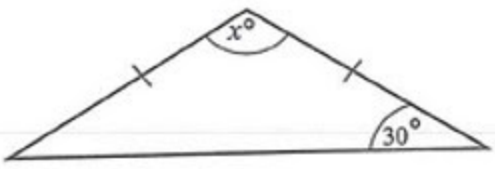
In the triangle, the value of x is

(A) 30°
(B) 60°
(C) 120°
(D) 150°

- A
- B
- C
- D

38. * 1 point

Item 54 refers to the following diagram of an isosceles triangle.



In the triangle, the value of x is

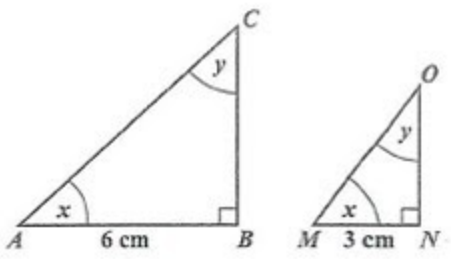
(A) 30°
(B) 60°
(C) 120°
(D) 150°

- A
- B
- C
- D

39. *

1 point

Item 58 refers to the following pair of similar triangles.



If the area of ΔABC is 20 cm², what is the area of ΔMNO, in cm²?

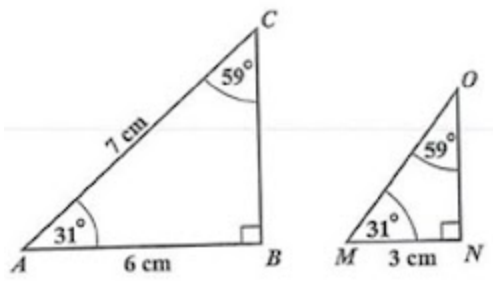
(A) 2.5
(B) 3.3
(C) 5
(D) 10

- A
- B
- C
- D

40. *

1 point

Item 56 refers to the following pair of similar triangles.



The length on MO, in cm, is

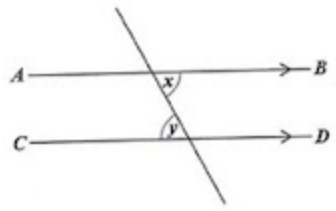
(A) 2.5
(B) 3.0
(C) 3.5
(D) 7.0

- A
- B
- C
- D

41. *

1 point

Item 55 refers to the following transversal diagram, in which the lines AB and CD are parallel.



Which of the following BEST describes the relation between x and y?

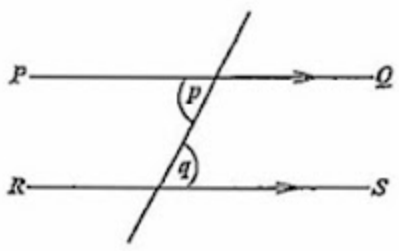
(A) $x > y$
(B) $x = y$
(C) $x + y > 2x$
(D) $x + y < 2x$

- A
- B
- C
- D

42. *

1 point

Item 54 refers to the following diagram.



In the diagram PQ and RS are parallel. Which of the following BEST describes the relation between p and q?

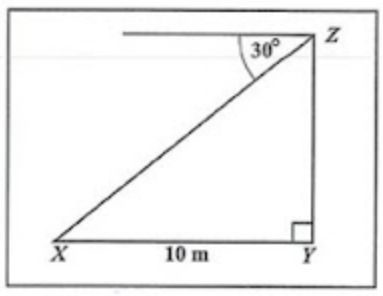
(A) $p = q$
(B) $p < q$
(C) $p - q = 180°$
(D) $p + q = 180°$

- A
- B
- C
- D

43. *

1 point

Item 60 refers to the following diagram, **not drawn to scale**, which shows that 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

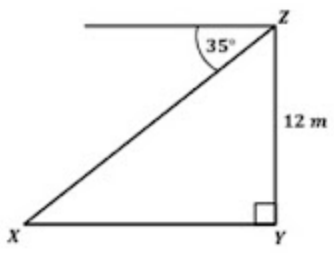
(A) $10 \tan 30°$
(B) $10 \sin 30°$
(C) $10 \cos 30°$
(D) $10 \cos 60°$

- A
- B
- C
- D

44. *

1 point

Item 59 refers to the following diagram which shows that the angle of depression of a point X from Z is $35°$.



If Y is 12 metres from Z, then the base, XY, in metres, is

(A) $12 \cos 35°$

(B) $12 \sin 35°$

(C) $12 \tan 35°$

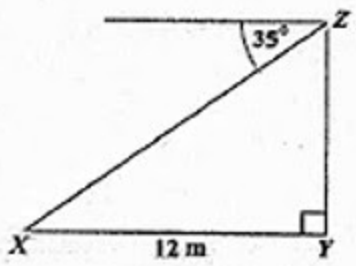
(D) $12 \tan 55°$

- A
- B
- C
- D

45. *

1 point

Item 58 refers to the following diagram which shows the angle of depression of a point, X, from Z.



The angle of depression of the point X from Z is 35°. If X is 12 metres from Y, then the height YZ, in metres, is

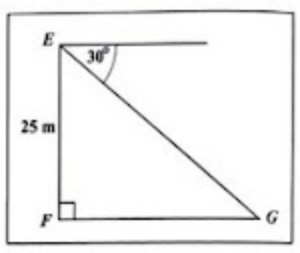
(A) $12 \cos 35°$
(B) $12 \tan 35°$
(C) $12 \sin 35°$
(D) $12 \cos 55°$

- A
- B
- C
- D

46. *

1 point

Item 59 refers to the following diagram which shows that the angle of depression of a point G from E is 30°.



. If F is 25 metres from E, then the distance FG, in metres, is

(A) $\frac{25}{\tan 30°}$

(B) $\frac{25}{\tan 60°}$

(C) $25 \cos 30°$

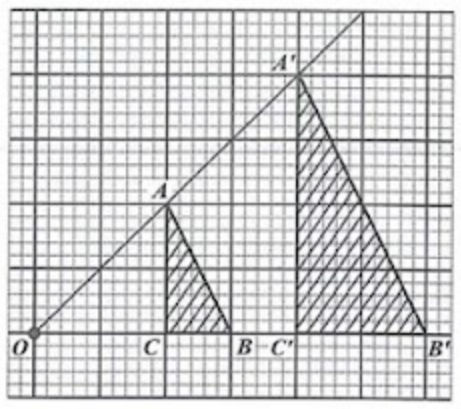
(D) $25 \sin 30°$

- A
- B
- C
- D

47. *

1 point

Item 58 refers to the following diagram.



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

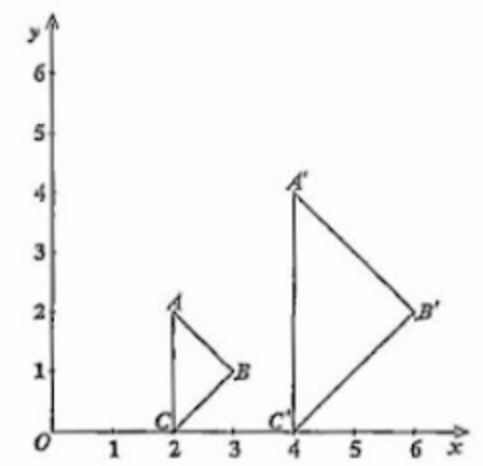
(D) –2

- A
- B
- C
- D

48. *

1 point

Item 58 refers to the following diagram which shows an enlargement.



In the diagram, triangle ABC is mapped onto triangle $A'B'C'$ where O is the centre of enlargement. What is the scale factor of the enlargement?

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

(B) –2

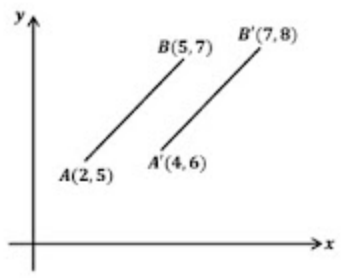
(C) $-\frac{1}{2}$

(D) 2

- A
- B
- C
- D

49. * 1 point

Item 53 refers to the following diagram which shows a translation.



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

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

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

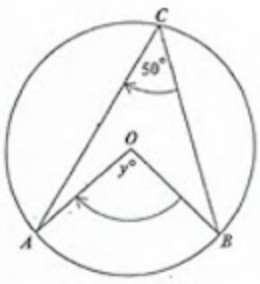
(C) $\begin{pmatrix}3\\2\end{pmatrix}$

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

- A
- B
- C
- D

50. * 1 point

Item 54 refers to the following diagram of a circle.



If O is the centre of the circle, then $y°$ is

(A) 25°
(B) 80°
(C) 90°
(D) 100°

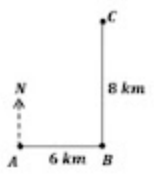
- A
- B
- C
- D

51. *

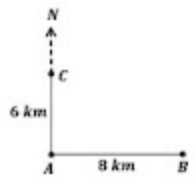
1 point

A ship sailed 8 *km* due east from *A* to *B*. It then sailed 6 *km* due north to *C*. Which of the following diagrams BEST represents the path of the ship?

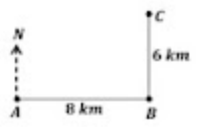
(A)



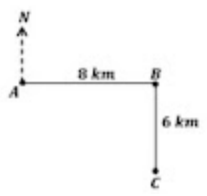
(B)



(C)



(D)

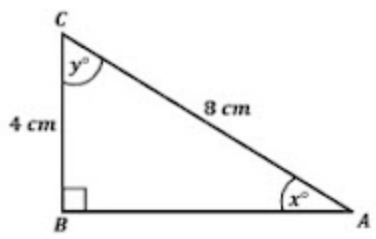


- A
- B
- C
- D

52. *

1 point

Item 60 refers to the following right-angled triangle.



Which trigonometric ratio is equal to $\frac{4}{8}$?

(A) $\sin x$

(B) $\tan y$

(C) $\cos x$

(D) $\tan x$

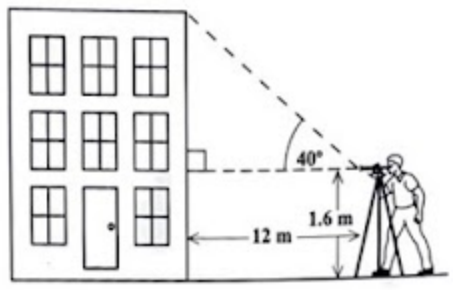
- A
- B
- C
- D

53. *

1 point

Item 60 refers to the following diagram of a building.

A surveyor sets up his instruments 12 metres from the foot of the building and records the angle of elevation of the top of the building.



. An estimate of the height of the building can be obtained by calculating

(A) $1.6 + 12 \tan 40°$

(B) $1.6 + 12 \cos 40°$

(C) $(12 \tan 40°) - 1.6$

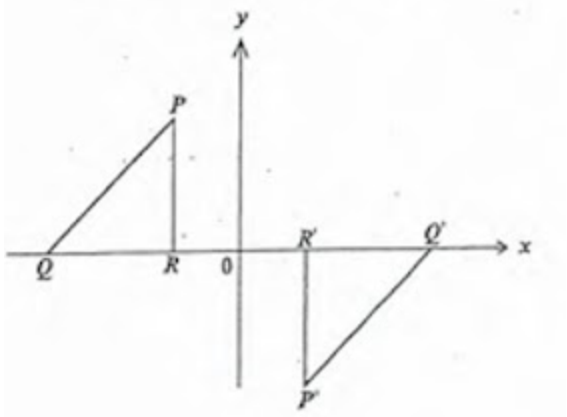
(D) $(12 \sin 40°) - 1.6$

- A
- B
- C
- D

54. *

1 point

Item 56 refers to the following diagram which shows a transformation.



The transformation which will map triangle PQR onto $P'Q'R'$ is

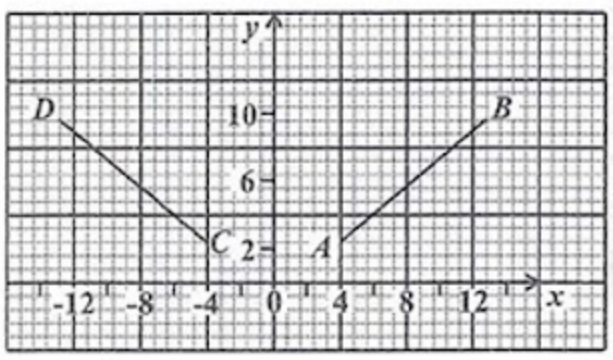
(A) a rotation of 180° about the origin
(B) a reflection in the line $y = x$
(C) an enlargement, centre R, of scale factor -1
(D) a translation parallel to the x-axis

- A
- B
- C
- D

55. *

1 point

Item 57 refers to the following diagram of two straight lines.



In the diagram above, the line CD is the image of AB after

(A) a rotation through 90° centre O

(B) a reflection in the y-axis

(C) a translation by vector $\begin{bmatrix} -4 \\ -8 \end{bmatrix}$

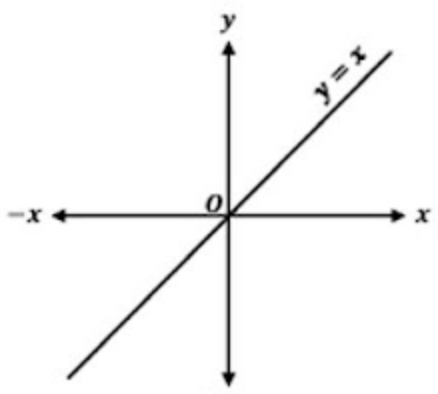
(D) a reflection in the x-axis

- A
- B
- C
- D

56. *

1 point

Item 57 refers to the following diagram which shows the graph of the line $y = x$.



. If the line $y = x$ is rotated anti-clockwise about O through 90°, then its image is

(A) $y = -x$

(B) $x = y$

(C) $x = 0$

(D) $y = 0$

- A
- B
- C
- D

57. * 1 point

In triangle ABC, angle $A = x°$ and angle $B = 2x°$. What is the size of angle C?

(A) $30°$

(B) $60°$

(C) $\left[\frac{180}{3x}\right]°$

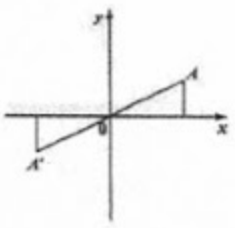
(D) $(180 - 3x)°$

- A
- B
- C
- D

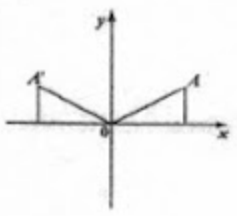
58. * 1 point

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

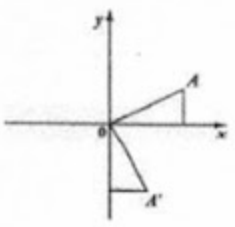
(A)



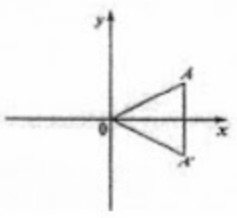
(B)



(C)



(D)



- A
- B
- C
- D

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