

Practice Quiz 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!

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✉ Not shared

* Indicates required question

Full Name *

Your answer

Name of School *

Your answer

Untitled Question *

1 point

1. The number 3.14063 written correct to 3 decimal places is

- (A) 3.140
- (B) 3.141
- (C) 3.146
- (D) 3.150

- A
- B
- C
- D



*

1 point

2. What percentage of 40 is 8?

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

- A
- B
- C
- D

*

1 point

3. In standard notation, 208.06 is written as

- (A) 2.0806×10^{-2}
- (B) 20.806×10^1
- (C) 2.0806×10^2
- (D) 0.20806×10^3

- A
- B
- C
- D

*

1 point

4. What is the LEAST number of apples that can be shared **equally** among either 6, 10 or 15 children?

- (A) 24
- (B) 30
- (C) 60
- (D) 90

- A
- B
- C
- D



*

1 point

5. If \$350 is shared in the ratio 2:5, the LARGER share is

- (A) \$ 50
(B) \$ 70
(C) \$100
(D) \$250

- A
 B
 C
 D

*

1 point

6. 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

- A
 B
 C
 D

*

1 point

7. If the universal set $U = \{1, 2, 3, 4, 5, 6\}$ and $H = \{3, 4, 6\}$, then $H' =$

- (A) $\{1, 3, 5\}$
(B) $\{1, 2, 5\}$
(C) $\{2, 4, 6\}$
(D) $\{3, 4, 6\}$

- A
 B
 C
 D



*

1 point

8. Which of the following statements describes the set of integers from -3 to 6 ?

- (A) $\{x : -3 > x > 6, x \in \mathbb{Z}\}$
(B) $\{x : -3 \geq x \geq 6, x \in \mathbb{Z}\}$
(C) $\{x : -3 \leq x \leq 6, x \in \mathbb{Z}\}$
(D) $\{x : -3 < x < 6, x \in \mathbb{Z}\}$

- A
 B
 C
 D

*

1 point

9. If X and Y are 2 finite sets such that $n(X) = 9$, $n(Y) = 10$ and $n(X \cup Y) = 15$, then $n(X \cap Y)$ is

- (A) 4
(B) 6
(C) 10
(D) 19

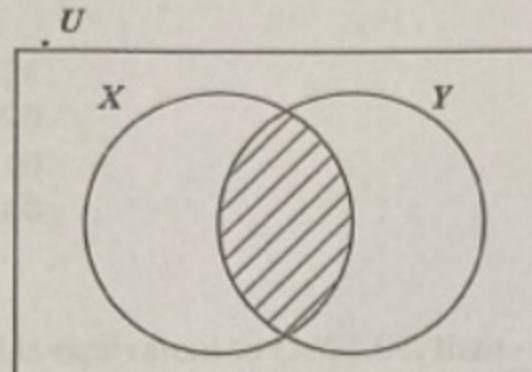
- A
 B
 C
 D



*

1 point

Item 10 refers to the following Venn diagram.



10. In the Venn diagram, X represents the set of factors of 12. Y represents the set of factors of 9. The shaded region represents the set of all factors of
- (A) 3
(B) 6
(C) 21
(D) 108

- A
 B
 C
 D

*

1 point

11. Which of the following pairs of sets is an example of disjoint sets?

- (A) $X = \{\text{whole numbers}\}$ and $Y = \{\text{rational numbers}\}$
(B) $G = \{\text{multiples of five}\}$ and $H = \{\text{multiples of ten}\}$
(C) $P = \{\text{multiples of 2}\}$ and $Q = \{\text{multiples of 3}\}$
(D) $E = \{\text{even numbers}\}$ and $F = \{\text{odd numbers}\}$

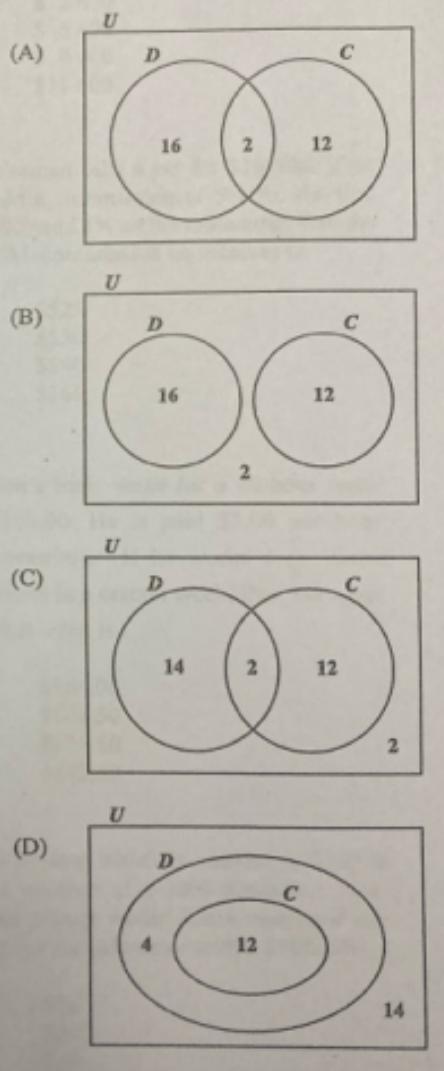
- A
 B
 C
 D



*

1 point

12. The 30 students in Teacher May's class have either a dog (D) or a cat (C), or none of the two. ALL the students who have a cat also have a dog. If $n(C) = 12$ and $n(D) = 16$, which of the following Venn diagrams correctly represents this information?



- A
 B
 C
 D

*

1 point

13. Excluding sales tax, how much will be saved when a video which costs \$12.00 is sold at a 20% discount?

- (A) \$0.24
(B) \$1.20
(C) \$2.40
(D) \$3.60

- A
 B
 C
 D



*

1 point

14. If EC\$2.50 is equivalent to US\$1.00, then EC\$20.00 in US dollars is

- (A) \$ 5.00
(B) \$ 8.00
(C) \$50.00
(D) \$80.00

- A
 B
 C
 D

*

1 point

15. The cash price of a television set is \$350. 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

- A
 B
 C
 D

*

1 point

16. A company employs 20 persons as gardeners and clerks. The mean daily wage of ALL the employees is \$22.40. If EACH of the 12 gardeners is paid \$26.00 per day, then the daily amount paid to each of the 8 clerks is

- (A) \$ 3.60
(B) \$12.20
(C) \$17.00
(D) \$48.40

- A
 B
 C
 D



*

1 point

17. A man's annual salary is \$45 000. His tax free allowances total \$13 000. He has to pay a tax of 20% on his taxable income.

The tax payable is

- (A) \$ 2 600
(B) \$ 6 400
(C) \$ 9 000
(D) \$11 600

- A
 B
 C
 D

*

1 point

18. A salesman sells a car for \$10 500. If he is paid a commission of 5% for the first \$10 000 and 8% on the remainder, then the TOTAL commission he receives is

- (A) \$525
(B) \$530
(C) \$540
(D) \$565

- A
 B
 C
 D

*

1 point

19. A man's basic wage for a 40-hour week is \$160.00. He is paid \$5.00 per hour for overtime. If he works $6\frac{1}{2}$ hours overtime in a certain week, then his wage for that week is

- (A) \$165.00
(B) \$166.50
(C) \$171.50
(D) \$192.50

- A
 B
 C
 D



*

1 point

20. A calculator which is marked at \$120 is sold for cash at a 30% discount. How much change would Susan receive if she pays for the calculator with a \$100 bill?

- (A) \$16
(B) \$20
(C) \$28
(D) \$36

- A
 B
 C
 D

*

1 point

21. Meghan normally saves \$x each month but in August she saved \$4 less than twice her usual amount. In August, she saved

- (A) \$4x
(B) \$6x
(C) \$2x - 4
(D) \$2(x - 4)

- A
 B
 C
 D

*

1 point

22. If $m * n = \sqrt{m^3 - n^2}$, then $5 * (5 * 2) =$

- (A) 2
(B) $\sqrt{11}$
(C) $\sqrt{34}$
(D) 11

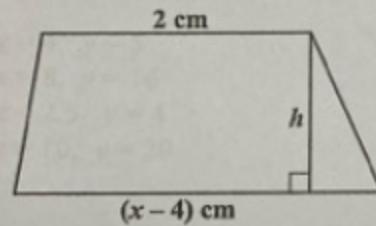
- A
 B
 C
 D



*

1 point

Item 23 refers to the following diagram of a trapezium.



23. The trapezium with height, h , has an area of x^2 cm 2 . The height of the trapezium expressed in terms of x is

(A) $h = \frac{2x^2}{x-2}$

(B) $h = \frac{x-2}{2x^2}$

(C) $h = \frac{x^2}{2(x-4)}$

(D) $h = \frac{x^2}{(x-4)(x+2)}$

- A
 B
 C
 D

*

1 point

24. $3 - (x - 2) =$

(A) $1 - x$
(B) $x + 5$
(C) $5 - x$
(D) $3x + 2$

- A
 B
 C
 D



*

1 point

25. $5^{n+1} \times 5^{n+2}$ is the same as

- (A) 5^{2n}
- (B) 5^{2n+3}
- (C) $5^{3(2n)}$
- (D) 2×5^{2n}

- A
- B
- C
- D

*

1 point

26. If $5(y - 2) = 3(y + 4)$, then y is

- (A) -1
- (B) 3
- (C) 7
- (D) 11

- A
- B
- C
- D



*

1 point

Item 27 refers to the following vectors, \mathbf{p} and \mathbf{q} .

$$\mathbf{p} = \begin{bmatrix} 3 \\ 7 \end{bmatrix} \quad \mathbf{q} = \begin{bmatrix} -2 \\ 5 \end{bmatrix}$$

27. The vector $\mathbf{p} - 2\mathbf{q}$ is represented by

(A) $\begin{bmatrix} 1 \\ 3 \end{bmatrix}$

(B) $\begin{bmatrix} -7 \\ 3 \end{bmatrix}$

(C) $\begin{bmatrix} 7 \\ -3 \end{bmatrix}$

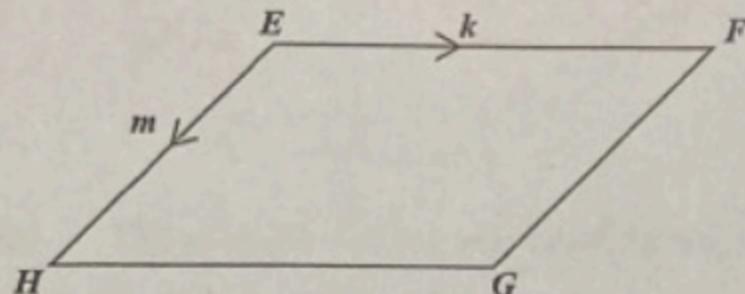
(D) $\begin{bmatrix} -1 \\ -3 \end{bmatrix}$

 A B C D

*

1 point

Item 28 refers to the following diagram of a parallelogram, in which EF is parallel to HG , EH is parallel to FG , $\overrightarrow{EF} = k$ and $\overrightarrow{EH} = m$.



28. \overrightarrow{EG} expressed in terms of k and m is

(A) $k + m$

(B) $k - m$

(C) $m - k$

(D) $-m - k$

 A B C D

*

1 point

29. If $5 \begin{bmatrix} x \\ y \end{bmatrix} = 4 \begin{bmatrix} 10 \\ 20 \end{bmatrix}$, then the values of x and y are

- (A) $x = 4, y = 5$
- (B) $x = 8, y = 16$
- (C) $x = 2.5, y = 4$
- (D) $x = 10, y = 20$

- A
- B
- C
- D

*

1 point

Item 30 refers to the following matrix, A .

$$A = \begin{bmatrix} 2 & 1 \\ 7 & 4 \end{bmatrix}$$

30. The inverse of A , A^{-1} , is given by

- (A) $\frac{1}{17} \begin{bmatrix} 4 & -1 \\ -7 & 2 \end{bmatrix}$
- (B) $\frac{1}{17} \begin{bmatrix} -4 & 1 \\ 7 & -2 \end{bmatrix}$
- (C) $\begin{bmatrix} -4 & 1 \\ 7 & -2 \end{bmatrix}$
- (D) $\begin{bmatrix} 4 & -1 \\ -7 & 2 \end{bmatrix}$

- A
- B
- C
- D



*

1 point

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

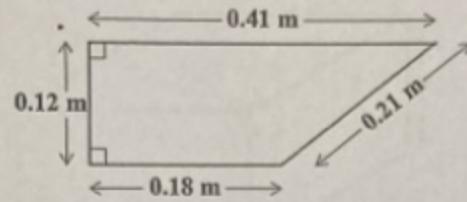
- (A) 12
(B) 102
(C) 120
(D) 1 200

- A
 B
 C
 D

*

1 point

Item 32 refers to the following diagram of a trapezium.



32. The perimeter of the trapezium, in cm, is

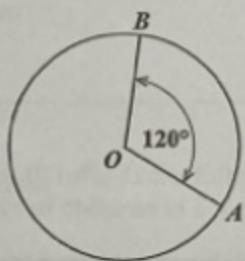
- (A) 0.092
(B) 9.2
(C) 92
(D) 920

- A
 B
 C
 D



1 point

Item 33 refers to the following circle, with centre O .



33. If the circumference of the circle is 15 cm, then the length of the minor arc AB , in cm, is

- (A) $\frac{360}{120} \times 15$
(B) $\frac{120}{360} \times 15$
(C) $\frac{360}{360 - 120} \times 15$
(D) $\frac{360 - 120}{360} \times 15$

- A
 B
 C
 D

*

1 point

34. An aircraft leaves A at 16:00 hours and arrives at B at 19:30 hours, travelling at an average speed of 550 kilometres per hour. A and B are in the same time zone. The distance from A to B , in kilometres, is

- (A) 907.5
(B) 962.5
(C) 1 815
(D) 1 925

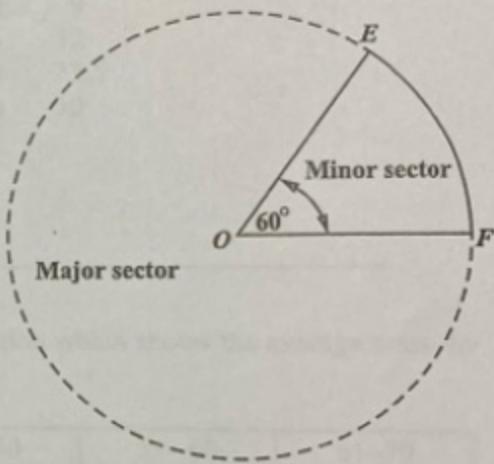
- A
 B
 C
 D



*

1 point

Item 35 refers to the following diagram which shows a circle, with centre O , and the major and minor sectors indicated.



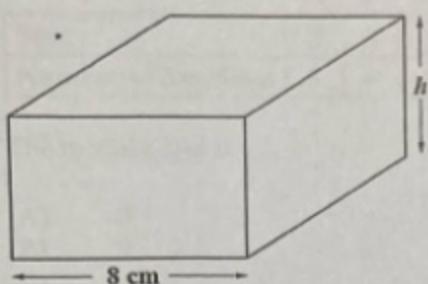
35. If the area of the major sector is 515 cm^2 , then the area of the circle, in cm^2 , is
- (A) 103
(B) 412
(C) 575
(D) 618

- A
 B
 C
 D

*

1 point

Item 36 refers to the following diagram which shows a cuboid.



36. The volume of the cuboid is 320 cm^3 and the height is $h \text{ cm}$. If the length of the square base of the cuboid is 8 cm, what is the value of h ?
- (A) 5 cm
(B) 16 cm
(C) 32 cm
(D) 64 cm

- A
 B
 C
 D



*

1 point

37. The area of a triangle is 60 cm^2 and its height is 10 cm. What is the length of the base of the triangle, in cm?

(A) 6
(B) 12
(C) 13
(D) 17

- A
 B
 C
 D

*

1 point

38. A square has the same perimeter as a rectangle whose sides are 9 cm and 15 cm in length. What is the length, in cm, of the side of the square?

(A) 9
(B) 12
(C) 12.5
(D) 50

- A
 B
 C
 D

39 *

1 point

Items 39 and 40 refer to the following frequency distribution which shows the average mass, in kg, of a group of children in a school.

Mass (kg)	21–30	31–40	41–50	51–60	61–70
Frequency	29	47	24	39	11

39. The lower limit of the median class is

(A) 31
(B) 41
(C) 51
(D) 61

40. How many children have a mass of at MOST 50 kg?

(A) 24
(B) 50
(C) 76
(D) 100

- A
 B
 C
 D



40 *

1 point

Items 39 and 40 refer to the following frequency distribution which shows the average mass, in kg, of a group of children in a school.

Mass (kg)	21–30	31–40	41–50	51–60	61–70
Frequency	29	47	24	39	11

39. The lower limit of the median class is

- (A) 31
- (B) 41
- (C) 51
- (D) 61

40. How many children have a mass of at MOST 50 kg?

- (A) 24
- (B) 50
- (C) 76
- (D) 100

- A
- B
- C
- D

*

1 point

Item 41 refers to the following table which shows the frequency distribution of scores obtained by students on a test.

Score	2	3	5	6	8	11
Number of Students	8	4	6	3	12	2

41. The modal score is

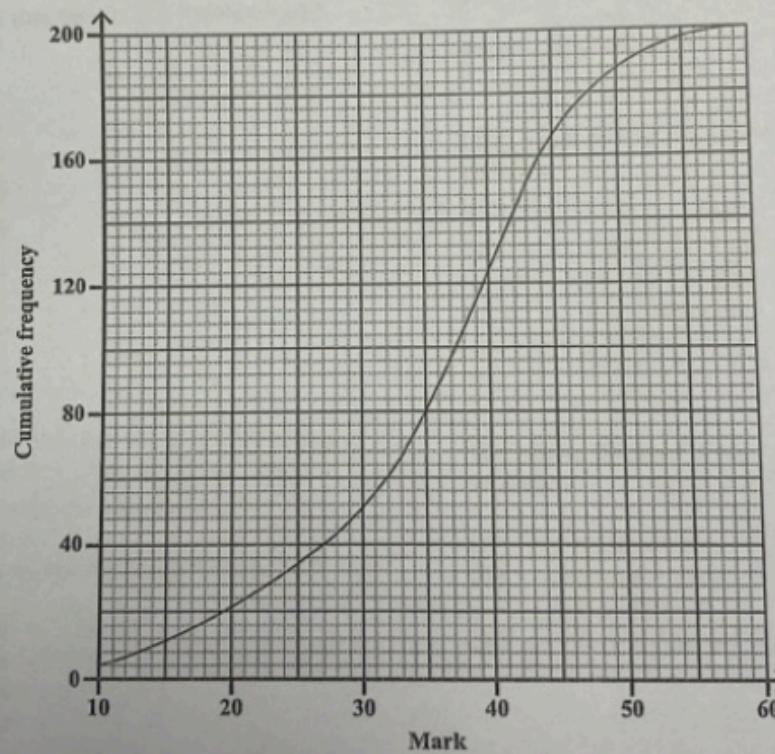
- (A) 8
- (B) 9
- (C) 10
- (D) 12

- A
- B
- C
- D



1 point

Item 42 refers to the following diagram of a cumulative frequency curve which shows the marks obtained by 200 students on a test.



42. The lower quartile of the marks scored by the 200 students is

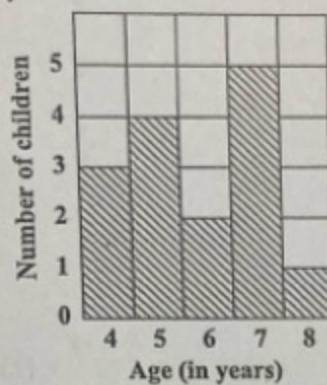
- (A) 30.0
- (B) 35.0
- (C) 37.5
- (D) 45.0

- A
- B
- C
- D



1 point

Item 43 refers to the following bar chart which shows the ages of children who took part in a survey.



43. A child is selected at random. What is the probability that the child is MORE than 4 years old?

- (A) $\frac{1}{5}$
(B) $\frac{1}{15}$
(C) $\frac{13}{15}$
(D) $\frac{4}{5}$

- A
 B
 C
 D

*

1 point

44. Six hundred students sit an examination. The probability of a randomly selected student passing the examination is $\frac{4}{5}$.

How many students are expected to fail?

- (A) 80
(B) 100
(C) 120
(D) 480

- A
 B
 C
 D



*

1 point

45. Which of the following functions represents the equation of a straight line?

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

- A
- B
- C
- D

*

1 point

46. The point where a linear function crosses the vertical axis is

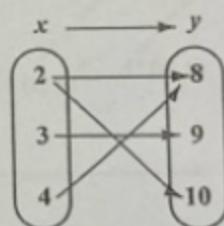
- (A) always negative
- (B) always positive
- (C) the x -intercept
- (D) the y -intercept

- A
- B
- C
- D

*

1 point

Item 47 refers to the following arrow diagram.



47. 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



*

1 point

48. 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

*

1 point

49. 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

*

1 point

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

- (A) 1
- (B) 2
- (C) 3
- (D) 7

- A
- B
- C
- D



*

1 point

51. The values of x at the points where $y = 4x - x^2$ intersects the x -axis are

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

- A
- B
- C
- D

*

1 point

52. A line L is perpendicular to the line

$$y = \frac{2}{5}x - 8.$$
 What is the gradient of the line L ?

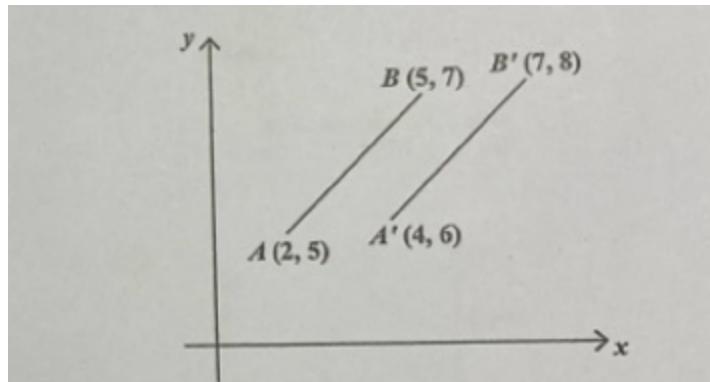
- (A) $-\frac{5}{2}$
- (B) $-\frac{2}{5}$
- (C) $\frac{2}{5}$
- (D) 2

- A
- B
- C
- D



*

1 point



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

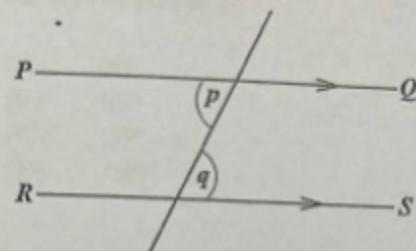
(A) $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$
 (B) $\begin{bmatrix} 2 \\ 1 \end{bmatrix}$
 (C) $\begin{bmatrix} 3 \\ 2 \end{bmatrix}$
 (D) $\begin{bmatrix} 5 \\ 3 \end{bmatrix}$

- A
 B
 C
 D

*

1 point

Item 54 refers to the following transversal diagram in which PQ and RS are parallel.



4. Which of the following statements BEST describes the relation between p and q ?

(A) $p = q$
 (B) $p < q$
 (C) $p + q = 90^\circ$
 (D) $p + q = 180^\circ$

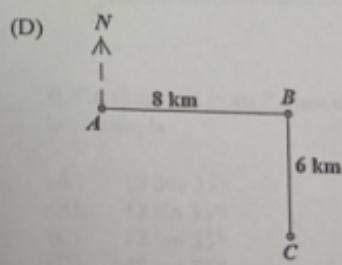
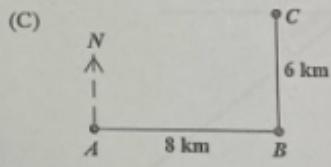
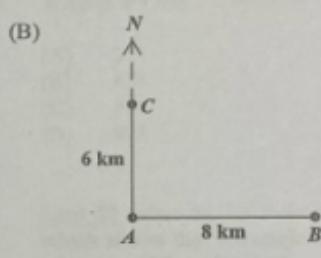
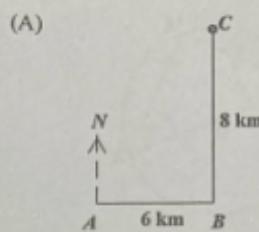
- A
 B
 C
 D



*

1 point

55. 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

*

1 point

56. In a polygon, Angle $A = x^\circ$ and Angle A and Angle B are supplementary. What is the size of Angle B ?

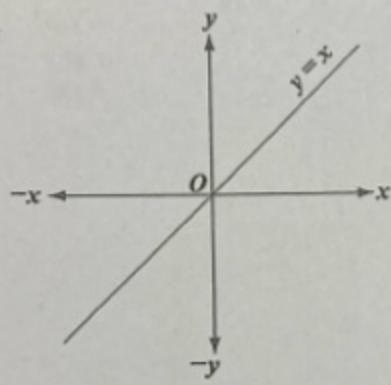
- (A) 30°
(B) 60°
(C) $90^\circ - x$
(D) $180^\circ - x$

- A
 B
 C
 D



1 point

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



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

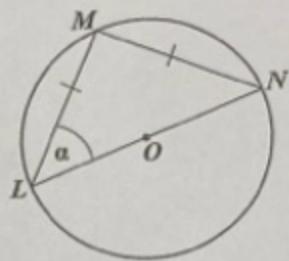
- (A) $y = -x$
- (B) $x = y$
- (C) $x = 0$
- (D) $y = 0$

- A
- B
- C
- D

*

1 point

Item 58 refers to the following diagram which shows a triangle within a circle. In the triangle, LM and MN are equal. The circle is centred at O .



58. What is the size of Angle α ?

- (A) 25°
- (B) 45°
- (C) 50°
- (D) 90°

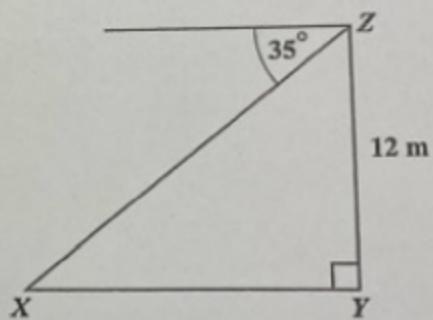
- A
- B
- C
- D



*

1 point

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



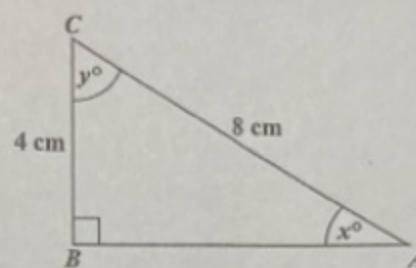
59. If Y is 12 metres from Z , then the base, XY , in metres, is

- (A) $12 \cos 35^\circ$
- (B) $12 \sin 35^\circ$
- (C) $12 \tan 35^\circ$
- (D) $12 \tan 55^\circ$

- A
- B
- C
- D

1 point

Item 60 refers to the following right-angled triangle.



60. 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

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