

UNIT 40.1.2 *CSEC Multiple Choice Items***Sample Paper 01**

This paper consists of 60 Multiple Choice items from the Core Syllabus according to the following allocation:

| Section | No. of items |
|---------------------------------|---------------------|
| Computation | 6 |
| Number Theory | 4 |
| Consumer Arithmetic | 8 |
| Sets | 4 |
| Measurement | 8 |
| Statistics | 6 |
| Algebra | 9 |
| Relations, Functions and Graphs | 6 |
| Geometry and Trigonometry | 9 |
| | <hr/> |
| | 60 |

Each item is allocated ONE mark.

The time allowed for this paper is 1 hour 30 minutes.

No calculator is allowed for this paper.

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For each of these items, choose the option (A, B, C or D) that is TRUE.

1. The number 2549 written to 2 significant figures is
 - (A) 25
 - (B) 26
 - (C) 2500
 - (D) 2600
2. The decimal equivalent of $\frac{3}{8}$ is
 - (A) 0.125
 - (B) 0.3
 - (C) 0.375
 - (D) 0.38
3. $3\frac{1}{5} - 1\frac{3}{10} =$
 - (A) $1\frac{4}{5}$
 - (B) $1\frac{9}{10}$
 - (C) $2\frac{1}{10}$
 - (D) $2\frac{9}{10}$
4. In a school of 910 pupils, $\frac{2}{5}$ are girls and $\frac{2}{7}$ of the girls play netball. How many girls play netball?
 - (A) 52
 - (B) 104
 - (C) 260
 - (D) 364
5. 0.0039×10^{-2} in scientific notation is
 - (A) 3.9×10^{-4}
 - (B) 4×10^{-5}
 - (C) 3.9×10^{-5}
 - (D) 3.9×10^{-6}
6. \$x is divided among three boys, Romon, Deven and Adam, in the ratio 2 : 3 : 7, respectively.
If Adam gets \$28, what is the value of x ?
 - (A) \$48
 - (B) \$96
 - (C) \$144
 - (D) \$192
7. Which of the following sets has a finite number of members?
 - (A) {factors of 40}
 - (B) {multiples of 40}
 - (C) {odd numbers greater than 10}
 - (D) {prime numbers greater than 300}
8. Which of the following is a prime number?
 - (A) 51
 - (B) 53
 - (C) 55
 - (D) 57

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9. If $x = 2^3 \times 5^2 =$, then $x^4 =$
- (A) $2^7 \times 5^6$
(B) $2^7 \times 5^8$
(C) $2^{12} \times 5^6$
(D) $2^{12} \times 5^8$
10. Three lights flash at intervals of 2, 6 and 14 seconds respectively. They are started together. How soon after will they next flash together again?
- (A) 28 secs
(B) 42 secs
(C) 84 secs
(D) 168 secs
11. After a 5% discount, an article is sold for \$475. The price before the discount was
- (A) \$ 425
(B) \$ 450
(C) \$ 500
(D) \$ 525
12. A store charges 15% VAT on all sales. What is the total cost of a TV set marked at \$300 ?
- (A) \$255
(B) \$300
(C) \$330
(D) \$345
13. A shopkeeper buys 24 CD players for a wholesale price of \$1800. At what price per CD player must she sell to make a profit of 10% on her cost?
- (A) \$ 67.50
(B) \$ 82.50
(C) \$ 90.00
(D) \$100.00
14. The interest rate on investments in a bank increased from 5 per cent per annum to $6\frac{1}{2}$ per cent per annum. The difference in annual interest on a deposit of \$4000 is
- (A) \$ 30
(B) \$ 50
(C) \$ 60
(D) \$120
15. The marked price of a bicycle was \$260. A man bought the bicycle on hire-purchase by making a down payment of \$100, and twelve monthly payments of \$16 each. How much could he have saved if he had bought the bicycle for the marked price?
- (A) \$16
(B) \$32
(C) \$48
(D) \$64
16. How much simple interest is due on a loan of \$240 for two years if the annual rate of interest is 4 per cent?
- (A) \$ 8.80
(B) \$10.00
(C) \$13.20
(D) \$19.20
17. The water authority charges \$20.00 per month for the meter rent, \$2.00 for the first 1 000 litres and \$0.20 for each additional 100 litres. What is the total bill for 2400 litres used in one month?
- (A) \$24.80
(B) \$25.00
(C) \$28.80
(D) \$30.00

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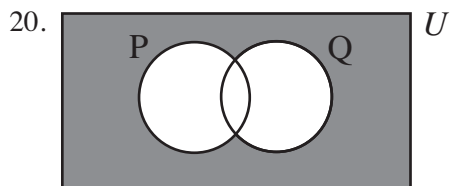
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18. If US\$1.00 is equivalent to J\$120.00, how much in US\$ would one get for J\$9600?

- (A) \$ 40.00
- (B) \$ 80.00
- (C) \$ 96.00
- (D) \$120.00

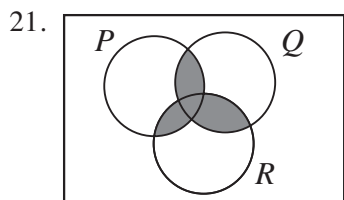
19. If $U = \{1, 2, 3, \dots, 10\}$ and $S = \{2, 4, 6, 8, 10\}$, then $S' =$

- (A) $\{1\}$
- (B) $\{1, 3, 5, 7\}$
- (C) $\{1, 3, 5, 7, 9\}$
- (D) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$



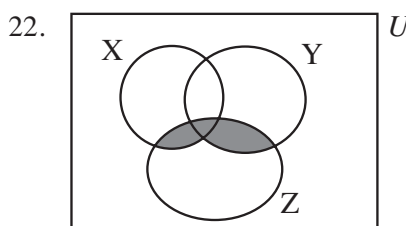
In the Venn diagram above, the shaded portion represents

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



The shaded area in the Venn diagram above represents

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



In the figure above, the shaded portion represents

- (A) $(X \cap Z) \cup Y$
- (B) $(X \cap Y) \cup Z$
- (C) $(X \cup Y) \cap Z$
- (D) $(Y \cap Z) \cup X$

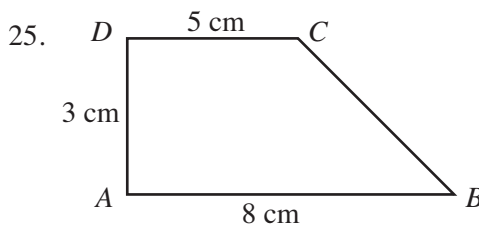
23. How many grams are in 2.5 kilograms?

- (A) 25 g
- (B) 250 g
- (C) 2 500 g
- (D) 25 000 g

24. A rectangular tank is 50 cm long, 50 cm wide and 10 cm deep.

The volume of liquid it will hold is

- (A) 2.5 litres
- (B) 25 litres
- (C) 250 litres
- (D) 2500 litres



The area of the trapezium ABCD above is

- (A) 16 cm^2
- (B) 17.5 cm^2
- (C) 18 cm^2
- (D) 19.5 cm^2

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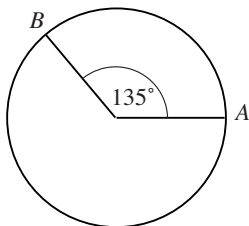
26. Which of the following words BEST describes a triangle with all its sides equal?

- (A) Scalene
- (B) Isosceles
- (C) Equilateral
- (D) None of these

27. A square has the same area as a rectangle with sides of length 4 centimetres and 25 centimetres. What is the length of the square?

- (A) 9 cm
- (B) 10 cm
- (C) 16 cm
- (D) 20 cm

28.



In the circle above, the circumference is 10 cm. The length of the arc AB, in centimetres, is

- (A) $\frac{1}{8} \times 10$
- (B) $\frac{1}{4} \times 10$
- (C) $\frac{3}{8} \times 10$
- (D) $\frac{1}{2} \times 10$

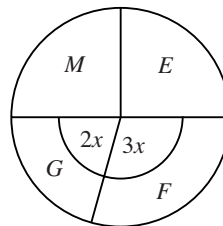
29. A circular hole with diameter 4 cm is cut out of a circular piece of card with a diameter of 16 cm. The area of the remaining card, in cm^2 , is

- (A) 12π
- (B) 60π
- (C) 144π
- (D) 240π

30. The width of a block of wood with rectangular cross-section is x cm. Its height is $\frac{3}{4}$ its width and its length is 3 times its height. What is its volume in cm^3 ?

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

31.



The pie chart above shows how a student used 10 hours per week for studying English (E), Mathematics (M), French (F) and Geography (G). The amount of hours spent studying French is approximately

- (A) 1
- (B) 2
- (C) 3
- (D) 4

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Items 32 and 33 refer to the information below
The following scores were obtained by eleven footballers in a goal-shoot competition:

| | | | | | |
|---|----|---|---|---|---|
| 5 | 3 | 6 | 8 | 7 | 8 |
| 3 | 11 | 6 | 8 | 2 | |

32. The modal score was

- (A) 3
- (B) 6
- (C) 8
- (D) 11

33. The median score was

- (A) 3
- (B) 6
- (C) 8
- (D) 11

34. The mean of five numbers is 42. If one of the numbers is 30, what is the mean of the other four?

- (A) 12
- (B) 32
- (C) 45
- (D) 180

35. The table shows the distribution of the ages of 25 students.

| | | | | | | |
|-----------------|----|----|----|----|----|----|
| Age | 11 | 12 | 13 | 14 | 15 | 16 |
| No. of students | 6 | 3 | 5 | 4 | 4 | 3 |

What is the probability that a student chosen at random is AT LEAST 14 years old?

- (A) $\frac{4}{25}$
- (B) $\frac{7}{25}$
- (C) $\frac{11}{25}$
- (D) $\frac{18}{25}$

36. In a box, there are 4 white, 3 red and 2 blue marbles. What is the probability that a marble taken at random is NOT red?

- (A) $\frac{1}{3}$
- (B) $\frac{4}{9}$
- (C) $\frac{5}{9}$
- (D) $\frac{2}{3}$

37. If $x = -2$ and $y = 3$, then $\frac{3x - 5y}{x^2y} =$

- (A) $-\frac{7}{4}$
- (B) $-\frac{3}{4}$
- (C) $\frac{3}{4}$
- (D) $\frac{7}{4}$

38. $-5 - (-2)^2 =$

- (A) -9
- (B) -1
- (C) 1
- (D) 9

39. If $p * q = pq^2$, then $4 * 5 =$

- (A) 20
- (B) 80
- (C) 100
- (D) 400

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40. $\frac{2x+1}{3} - \frac{x+2}{6} =$

(A) $\frac{x+1}{6}$

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

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

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

41. If x is an even number, which of the following is also even?

(A) $x + 1$

(B) $x + 4$

(C) $2x + 1$

(D) $3x + 1$

42. $5x - 3(x - 2) =$

(A) $8x + 6$

(B) $2x - 6$

(C) $2x + 6$

(D) $8x - 6$

43. $3(x - 2) - 2(7 - x) =$

(A) $x - 20$

(B) $5x - 16$

(C) $4x - 16$

(D) $5x - 20$

44. The expression $(2x - 1)(3x - 2) =$

(A) $6x^2 - 7x + 2$

(B) $6x^2 - 7x - 2$

(C) $6x^2 - 5x + 2$

(D) $6x^2 - x + 2$

45. The range of values of v when $3 - 2v \leq v - 9$ is

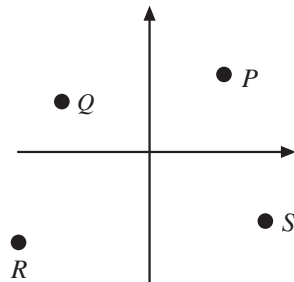
(A) $v \leq -12$

(B) $v \geq 12$

(C) $v \leq 4$

(D) $v \geq 4$

46.

In the figure above, for which point is the x -coordinate negative and the y -coordinate positive?

(A) P

(B) Q

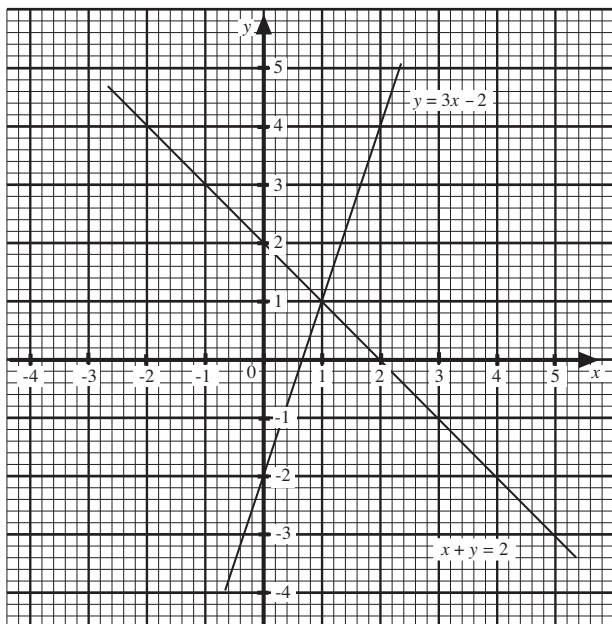
(C) R

(D) S

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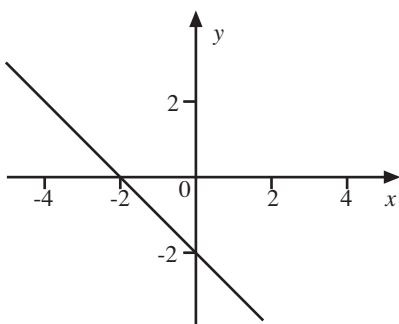
47.



The diagram above shows the graphs of $y = 3x - 2$ and $x + y = 2$. Which ordered pair (x, y) satisfies both equations?

- (A) (2, 0)
- (B) (1, 1)
- (C) (0, 2)
- (D) (0, -2)

48.



Which of the following relations is represented by the graph shown above?

- (A) $y - x - 2 = 0$
- (B) $y - x + 2 = 0$
- (C) $x + y - 2 = 0$
- (D) $x + y + 2 = 0$

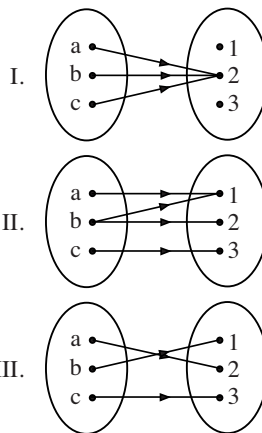
49. The equation of the line which passes through the point $(4, 0)$ and has a gradient of $\frac{1}{4}$ is

- (A) $y = \frac{1}{4}x - 1$
- (B) $y = \frac{1}{4}x + 1$
- (C) $y = 4x - 1$
- (D) $y = 4x + 1$

50. If $f : x \rightarrow x^4 - 4$, then $f(-2)$ is

- (A) -20
- (B) 0
- (C) 12
- (D) 16

51. Which of the relations represented below are functions?



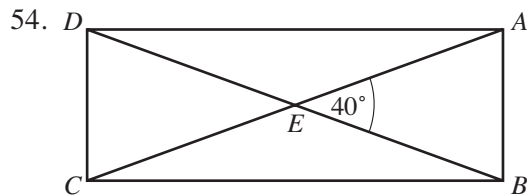
- (A) I and II only
- (B) I and III only
- (C) III only
- (D) I, II and III

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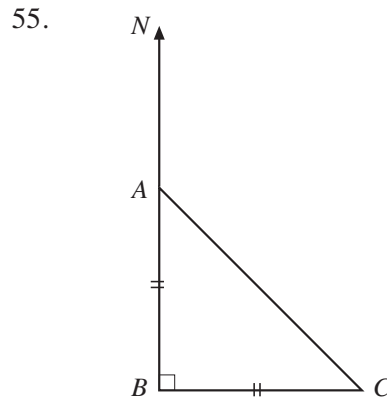
52. The sizes of the interior angles of a polygon are x° , $2x^\circ$, $2x^\circ$, 110° , 120° and 140° . What is the value of x ?
- (A) 34
 (B) 60
 (C) 70
 (D) 140

53. The interior angles of a regular polygon are half the size of the exterior angles. How many sides does the polygon have?
- (A) 3
 (B) 4
 (C) 5
 (D) 6



In the rectangle above, if $\angle AEB = 40^\circ$, then $\angle DAC =$

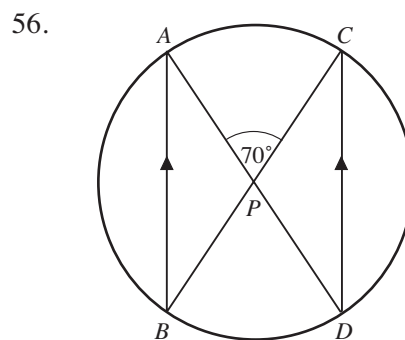
- (A) 10°
 (B) 20°
 (C) 40°
 (D) 80°



In the diagram, B is due south of A ; C is east of B , and $AB = BC$.

What is the bearing of A from C ?

- (A) 045°
 (B) 135°
 (C) 225°
 (D) 315°



In the figure above,

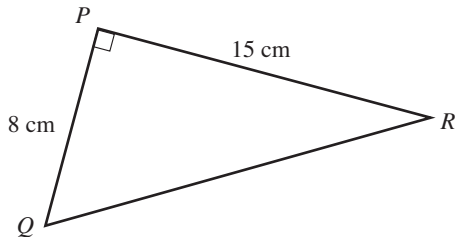
$AB \parallel CD$ and $\angle APC = 70^\circ$. $\angle BAD =$

- (A) 25°
 (B) 35°
 (C) 70°
 (D) 110°

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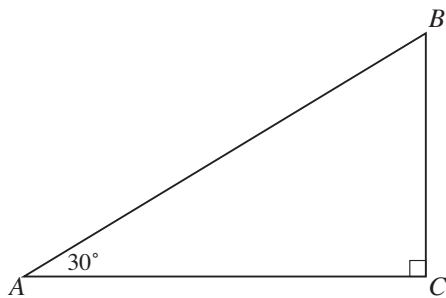
57. This question refers to the triangle PQR in which angle $QPR = 90^\circ$, $PR = 15$ cm and $PQ = 8$ cm.



The length of QR , in cm, is

- (A) 17
(B) 19
(C) 21
(D) 23

58.

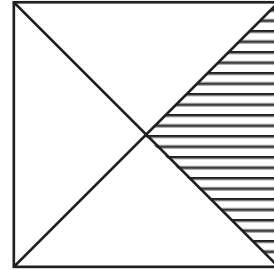


The triangle ABC above shows the angle of elevation of the top, B , of a tower, BC , from A , to be 30° . $AB = 40$ m. The length of AC is

- (A) $40 \tan 30^\circ$
(B) $40 \sin 60^\circ$
(C) $40 \cos 30^\circ$
(D) $40 \sin 30^\circ$

59. How many lines of symmetry does this shape have?

- (A) 0
(B) 1
(C) 2
(D) 4



60. When rotated through 90° about the origin in an anti-clockwise direction, the image of the point $(1, 2)$ is

- (A) $(2, 1)$
(B) $(2, -1)$
(C) $(-1, -2)$
(D) $(-2, 1)$

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Answer Grid

| Question number | Answer | SIM Reference Unit | SIM Reference Section |
|------------------------|---------------|---------------------------|------------------------------|
| 1 | C | 1 | 3 |
| 2 | C | 1 | 3 |
| 3 | B | 3 | 1 |
| 4 | B | 2 | 2 |
| 5 | C | 4 | 1 |
| 6 | A | 5 | 4 |
| 7 | A | 6 | 3 |
| 8 | B | 6 | 4 |
| 9 | D | 6 | 2 |
| 10 | B | 6 | 4 |
| 11 | C | 9 | 1 |
| 12 | D | 9 | 1 |
| 13 | B | 9 | 1 |
| 14 | C | 9 | 3 |
| 15 | B | 9 | 1 |
| 16 | D | 9 | 3 |
| 17 | A | 9 | 2 |
| 18 | B | 9 | 2 |
| 19 | C | 10 | 3 |
| 20 | D | 10 | 4 |
| 21 | D | 10 | 4 |
| 22 | C | 10 | 4 |
| 23 | C | 11 | 1 |
| 24 | B | 11 | 1 |
| 25 | D | 13 | 3 |
| 26 | C | 13 | 1 |
| 27 | B | 13 | 1 |
| 28 | C | 13 | 2 |
| 29 | B | 13 | 2 |
| 30 | D | 14 | 1 |

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| Question number | Answer | SIM Reference Unit | SIM Reference Section |
|------------------------|---------------|---------------------------|------------------------------|
| 31 | C | 16 | 1 |
| 32 | C | 17 | 1 |
| 33 | B | 17 | 1 |
| 34 | C | 17 | 3 |
| 35 | C | 19 | 3 |
| 36 | D | 19 | 4 |
| 37 | A | 21 | 4 |
| 38 | A | 21 | 3 |
| 39 | C | 21 | 5 |
| 40 | D | 22 | 5 |
| 41 | B | 22 | 3 |
| 42 | C | 22 | 1 |
| 43 | D | 22 | 1 |
| 44 | A | 23 | 2 |
| 45 | D | 26 | 2 |
| 46 | B | 27 | 2 |
| 47 | B | 27 | 3 |
| 48 | D | 28 | 4 |
| 49 | A | 28 | 4 |
| 50 | C | 30 | 1 |
| 51 | A | 30 | 1 |
| 52 | C | 31 | 4 |
| 53 | A | 31 | 5 |
| 54 | B | 31 | 3 |
| 55 | D | 32 | 1 |
| 56 | B | 31 | 4 |
| 57 | A | 33 | 1 |
| 58 | C | 34 | 1 |
| 59 | B | 31 | 2 |
| 60 | D | 36 | 2 |