

UNIT 40.1.1 *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
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	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.

- The number 32747 written to 4 significant figures is
 - 32740
 - 32750
 - 3274
 - 3275
- The decimal equivalent of $\frac{7}{8}$ is
 - 0.125
 - 0.7
 - 0.78
 - 0.875
- $2\frac{2}{5} + 3\frac{1}{10} =$
 - $5\frac{2}{50}$
 - $5\frac{1}{15}$
 - $5\frac{3}{15}$
 - $5\frac{1}{2}$
- In a school of 910 pupils, $\frac{3}{7}$ are boys and $\frac{2}{5}$ of the boys wear glasses. How many boys wear glasses?
 - 156
 - 390
 - 520
 - 754
- 0.045×10^{-3} in scientific notation is
 - 4.5×10^{-6}
 - 4.5×10^{-5}
 - 4.5×10^{-4}
 - 4.5×10^{-1}
- $\$x$ is divided among three boys, Ryan, Keith and Andrew, in the ratio 2 : 3 : 7, respectively.
If Andrew gets \$15 more than Keith, what is the value of x ?
 - \$27
 - \$45
 - \$57
 - \$180
- Which of the following sets has an infinite number of members?
 - {factors of 20}
 - {multiples of 20}
 - {odd numbers between 10 and 20}
 - {prime numbers less than 20}
- Which of the following is a prime number?
 - 31
 - 33
 - 35
 - 39

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9. If $x = 3^2 \times 2^3$, then $x^4 =$
- (A) $3^6 \times 2^3$
(B) $3^6 \times 2^7$
(C) $3^8 \times 2^3$
(D) $3^8 \times 2^{12}$
10. Three lights flash at intervals of 4, 6 and 10 seconds respectively. They are started together. How soon after will they next flash together again?
- (A) 40 secs
(B) 60 secs
(C) 120 secs
(D) 240 secs
11. After a 10% discount, an article is sold for \$360. The price before the discount was
- (A) \$ 36
(B) \$ 324
(C) \$ 392
(D) \$ 400
12. A store charges 6% VAT on all sales. What is the total cost of a shirt marked at \$30 ?
- (A) \$28.20
(B) \$31.80
(C) \$33.84
(D) \$36.00
13. A shopkeeper buys 48 radios for a wholesale price of \$7200. At what price per radio must he sell to make a profit of 15% on his cost?
- (A) \$128.00
(B) \$172.50
(C) \$222.550
(D) \$375.00
14. The interest rate on investments in a bank decreased from $8\frac{1}{2}$ per cent per annum to 6 per cent per annum. The difference in annual interest on a deposit of \$2 000 is
- (A) \$ 30
(B) \$ 50
(C) \$120
(D) \$170
15. The marked price of a stove was \$520. A worker bought the stove on hire-purchase by making a down payment of \$100, and twelve monthly payments of \$40 each. How much could she have saved if she had bought the stove for the marked price?
- (A) \$ 40
(B) \$ 60
(C) \$100
(D) \$140
16. How much simple interest is due on a loan of \$120 for two years if the annual rate of interest is $5\frac{1}{2}$ per cent?
- (A) \$12.00
(B) \$13.20
(C) \$26.40
(D) \$33.00
17. The water authority charges \$10.00 per month for the meter rent, \$2.50 for the first 1 000 litres and \$0.10 for each additional 100 litres. What is the total bill for 2 500 litres used in one month?
- (A) \$ 4.00
(B) \$12.70
(C) \$14.00
(D) \$14.90

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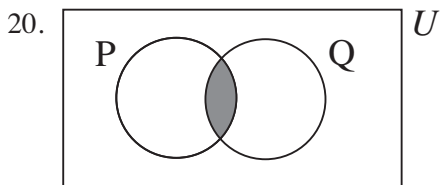
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18. If US\$1.00 is equivalent to EC\$2.68, how much in US\$ would one get for EC\$100?

- (A) \$ 26.80
- (B) \$ 37.31
- (C) \$268.00
- (D) \$373.10

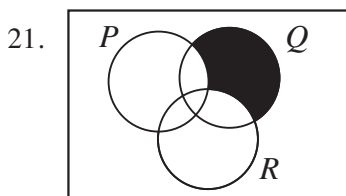
19. If $U = \{1, 2, 3, \dots, 10\}$ and $S = \{4, 5, 6, 7, 8\}$, then $S' =$

- (A) $\{9, 10\}$
- (B) $\{1, 2, 3\}$
- (C) $\{1, 2, 3, 9\}$
- (D) $\{1, 2, 3, 9, 10\}$



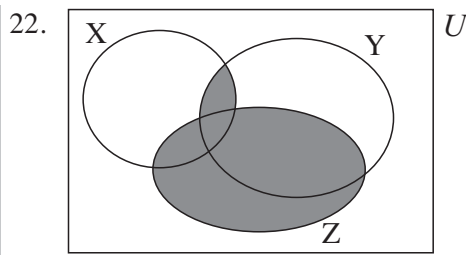
In the Venn diagram above, the shaded portion represents

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



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) $(Y \cap Z) \cup X$

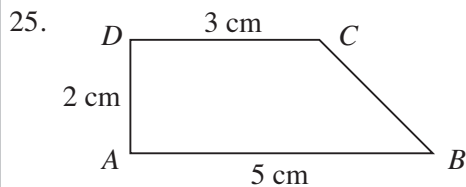
23. How many grams are in 2 kilograms?

- (A) 20 g
- (B) 200 g
- (C) 2 000 g
- (D) 20 000 g

24. A rectangular tank is 100 cm long, 30 cm wide and 12 cm deep.

The volume of liquid it will hold is

- (A) 3.6 litres
- (B) 36 litres
- (C) 360 litres
- (D) 3600 litres



The area of the trapezium ABCD above is

- (A) 8 cm^2
- (B) 10 cm^2
- (C) 16 cm^2
- (D) 30 cm^2

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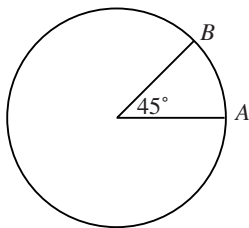
26. Which of the following words BEST describes a quadrilateral with all its sides equal?

- (A) Rhombus
 (B) Rectangle
 (C) Parallelogram
 (D) Trapezium

27. A square has the same area as a rectangle with sides of length 9 centimetres and 16 centimetres. What is the length of the square?

- (A) 9 cm
 (B) 12 cm
 (C) 12.5 cm
 (D) 72 cm

28.



In the circle above, the circumference is 20 cm. The length of the arc AB , in centimetres, is

- (A) $\frac{1}{45} \times 20$
 (B) $\frac{1}{8} \times 20$
 (C) $\frac{1}{4} \times 20$
 (D) 45×20

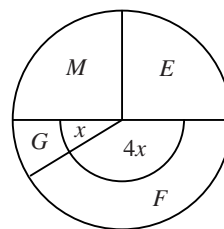
29. A circular hole with diameter 6 cm is cut out of a circular piece of card with a diameter of 12 cm. The area of the remaining card, in cm^2 , is

- (A) 6π
 (B) 27π
 (C) 36π
 (D) 108π

30. The width of a block of wood with rectangular cross-section is x cm. Its height is $\frac{2}{3}$ its width and its length is 4 times its height. What is its volume in cm^3 ?

- (A) $\frac{8x}{9}$
 (B) $\frac{16x^3}{9}$
 (C) $\frac{8x^3}{3}$
 (D) $\frac{17x}{3}$

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	3	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 ten numbers is 58. If one of the numbers is 40, what is the mean of the other nine?
- (A) 18
(B) 60
(C) 162
(D) 540
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 13 years old?

- (A) $\frac{4}{25}$
(B) $\frac{5}{25}$
(C) $\frac{11}{25}$
(D) $\frac{16}{25}$

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

- (A) $\frac{1}{9}$
(B) $\frac{2}{9}$
(C) $\frac{7}{9}$
(D) $\frac{8}{9}$

37. If $x = 2$ and $y = -1$, then $\frac{3x - 5y}{xy^2} =$

- (A) $\frac{-11}{2}$
(B) $\frac{-3}{4}$
(C) $\frac{3}{4}$
(D) $\frac{11}{2}$

38. $-7 - (-3) =$

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

39. If $p * q = pq^2$, then $2 * 3 =$

- (A) 6
(B) 12
(C) 18
(D) 36

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40. $\frac{3x+1}{2} - \frac{x+1}{4} =$

(A) $\frac{5x+3}{4}$

(B) $\frac{5x+1}{4}$

(C) $\frac{7x+3}{4}$

(D) $\frac{7x+1}{4}$

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

(A) $x + 1$

(B) $x + 2$

(C) $2x + 2$

(D) $3x + 1$

42. $8x - 4(x - 5) =$

(A) $4x + 20$

(B) $4x - 20$

(C) $4x + 5$

(D) $4x^2 - 20x$

43. $2(5 - x) - 3(x - 6) =$

(A) $x - 8$

(B) $28 - 5x$

(C) $-5x - 8$

(D) $8 - x$

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

(A) $3x^2 - x - 2$

(B) $3x^2 - x + 2$

(C) $3x^2 + x - 2$

(D) $3x^2 + x + 2$

45. The range of values of v when $5 - v \leq 2v - 1$ is

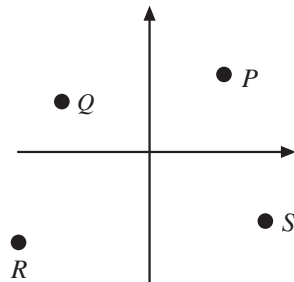
(A) $v < 2$

(B) $v \leq 2$

(C) $v > 2$

(D) $v \geq 2$

46.

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

(A) P

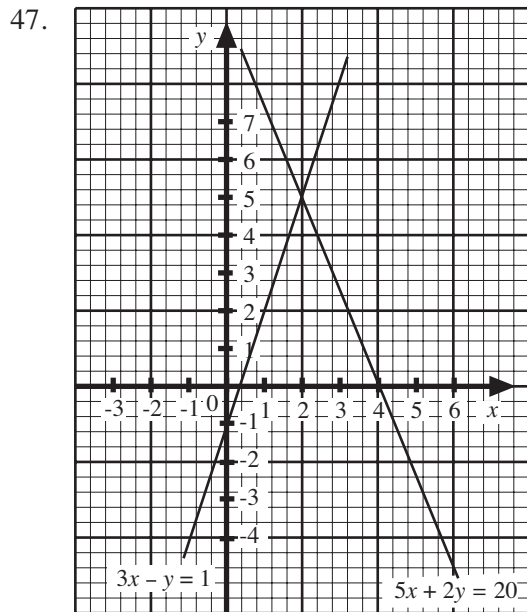
(B) Q

(C) R

(D) S

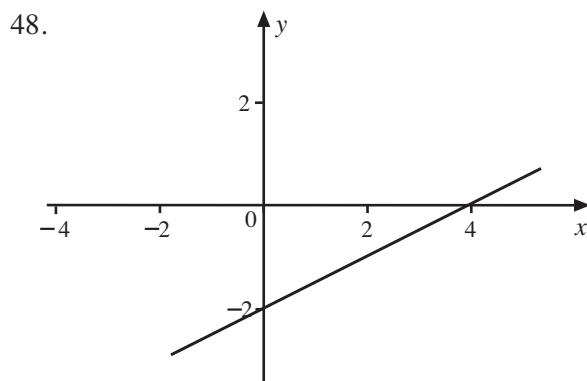
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The diagram above shows the graphs of $3x - y = 1$ and $5x + 2y = 20$. Which ordered pair (x, y) satisfies both equations?

- (A) $(4, 0)$
- (B) $(0, 1)$
- (C) $(2, 5)$
- (D) $(5, 2)$



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

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

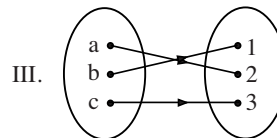
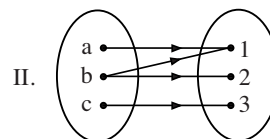
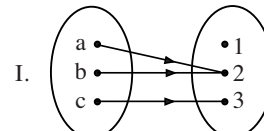
49. The equation of the line which passes through the point $(0, 2)$ and has a gradient of $\frac{1}{3}$ is

- (A) $y = 3x$
- (B) $y = 3x + 2$
- (C) $y = \frac{1}{3}x$
- (D) $y = \frac{1}{3}x + 2$

50. If $f : x \rightarrow x^2 + 1$, then $f(-3)$ is

- (A) 10
- (B) 7
- (C) -5
- (D) -8

51. Which of the relations represented below are functions?



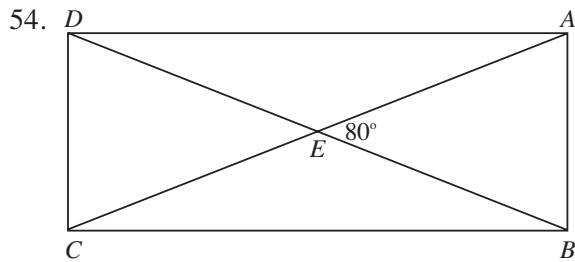
- (A) I and II only
- (B) I and III only
- (C) II and III only
- (D) I, II and III

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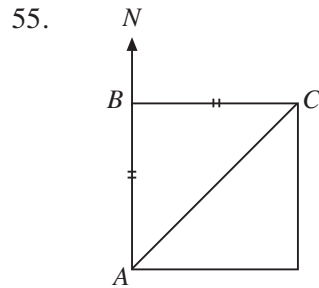
52. The sizes of the interior angles of a polygon are x° , $2x^\circ$, 60° , $3x^\circ$ and 36° . What is the value of x ?
- (A) 14
 (B) 16
 (C) 44
 (D) 74

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



In the rectangle above, if $\angle AEB = 80^\circ$, then $\angle DAC =$

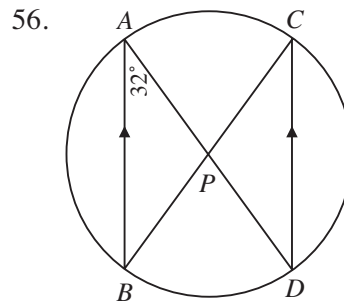
- (A) 10°
 (B) 40°
 (C) 50°
 (D) 80°



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

What is the bearing of A from C ?

- (A) 045°
 (B) 090°
 (C) 135°
 (D) 225°



In the figure above,

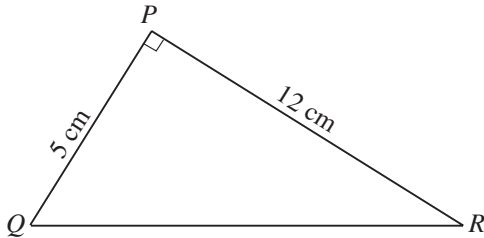
$AB \parallel CD$ and $\angle BAD = 32^\circ$. $\angle APC =$

- (A) 32°
 (B) 64°
 (C) 90°
 (D) 116°

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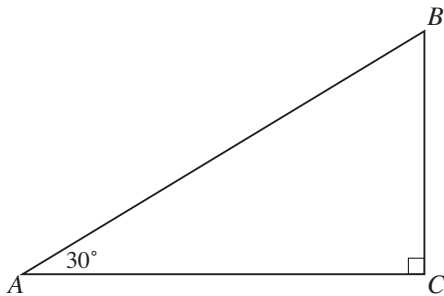
57. This question refers to the triangle PQR in which angle $QPR = 90^\circ$, $PR = 12$ cm and $PQ = 5$ cm.



The length of QR , in cm, is

- (A) 7
(B) 11
(C) 13
(D) 17

58.

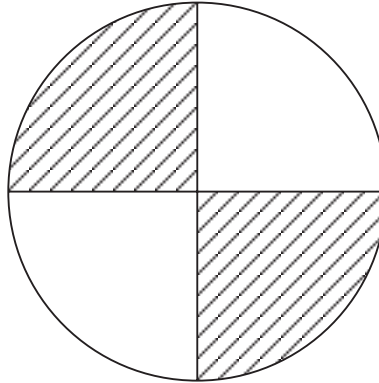


The triangle ABC above shows the angle of elevation of the top, B , of a tower, BC , from A , to be 30° .

$AB = 40$ m. The length of BC is

- (A) $40 \tan 30^\circ$
(B) $40 \sin 60^\circ$
(C) $40 \tan 60^\circ$
(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 a clockwise direction, the image of the point $(3, 1)$ is

- (A) $(-1, 3)$
(B) $(3, -1)$
(C) $(1, -3)$
(D) $(-3, 1)$

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Answer Grid

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

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Answer Grid

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