Fully-Worked Solutions

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Section A

1 $4 + 32 \div 4 - (-5) = 4 + 8 + 5$
$= 17$
Answer: **A**

2 2.59, 2.46, 0.27, –1.16, –1.38
Answer: **C**

3

4	96,	120,	156
3	24,	30,	39
	8,	10,	13

Number of students receive pens
$= 4 \times 3$
$= 12$
Answer: **B**

4 $\sqrt{36} = 6$
Perimeter $= 4 \times 6 = 24$ cm
Answer: **C**

5 2.4 m : 56 cm $= 240$ cm : 56 cm
$= 30 : 7$
Answer: **B**

6 H = Helmi's height
R = Rina's height
M = Martin's height
$H - R = 36$ cm
$H : R = 9 : 7$
$R : H - R = 7 : 2$
$R : 36 = 7 : 2$
$\frac{R}{36} = \frac{7}{2}$
$R = 126$
$R : M = 126 : 168$
$= 3 : 4$
Answer: **B**

7 L = Male students
P = Female students
$L : P = 52 : 48$
$= 13 : 12$
Answer: **D**

8 *Answer*: **D**

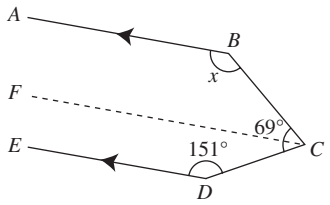
9 $3xy^2 \div 4x^2y^3z \times 6y^2z^2$
$= \frac{3 \times x \times y \times y \times 6 \times y \times y \times z \times z}{4 \times x \times x \times y \times y \times y \times z}$
$= \frac{9yz}{2x}$
Answer: **A**

10 $36 = 3x + 12$
$3x = 24$
$x = 8$
Answer: **D**

11 $3x \leqslant 5 + 15$
$3x \leqslant 20$
$x \leqslant 6.667$
The maximum number of pens that Hafi can buy = 6
Answer: **C**

12 $180° - 70° = 110°$
Answer: **B**

13



$\angle DCF = 180° - 151° = 29°$
$x = 180° - (69° - 29°) = 140°$
Answer: **B**

14 Number of diagonals of an octagon
$= \frac{8(8-3)}{2}$
$= 20$
Answer: **C**

15 For ΔQRS,
$\angle SQR = \angle QRS = \angle RSQ$
$\angle SQR = \frac{180°}{3} = 60°$
$x = 360° - 69° - 83° - (180° - 60°)$
$= 88°$
Answer: **D**

16 $4x + 2(19) = 54$
$4x = 16$
$x = 4$
Answer: **C**

17 $\frac{24}{4} = 6$
Area $= 6 \times 6 = 24$ cm^2
Answer: **C**

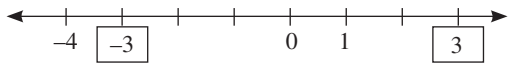
18 $P = \{1, 2, 3, 4, 6, 12\}$
$Q = \{1, 2, 3, x, 6, 12\}$
$\therefore x = 4$
Answer: **B**

19 $360° - 68° - 84° - 92° - 56° = 60°$
Number of students in class 5C
$= \frac{60}{360} \times 180 = 30$
Answer: **A**

20 $\sqrt{144} = 12$
$x = \sqrt{37^2 - 12^2}$
$= \sqrt{1\,225}$
$= 35$
Answer: **D**

Section B

1 (a)



(b)

Algebraic term	Coefficient	Variable
$-\frac{2xy^2}{3}$	$-\frac{2}{3}xy$	y
	$-\frac{2}{3}y^2$	x

2 (a) (i) ✗
(ii) ✓
(b) (i) $2x + 2y = 32$
$x + y = 16$
FALSE
(ii) $50 - x = P$ ... ①
$100 - y = P$ ... ②
① = ②,
$50 - x = 100 - y$
$y - x = 50$
TRUE

3 (a) $x = 180° - 90° - 50° = 40°$
$y = 180° - 150° = 30°$
$x + y = 40° + 30°$
$= 70°$
(b) (i) ✗
(ii) ✗

4 (a) $\frac{180° - 36°}{2} = 72°$
$x = 180° - 72° = 108°$
$y = 180° - 108° - 39° + 36° = 69°$
(b) $72° - 47° = 25°$
$x = 180° - 25° - 28° = 127°$
$180° - 127° = 53°$
$y = 180° - 53° - 72° = 55°$

5 (a) $x = 180° - 49° = 131°$
$360° - 131° - 113° = 116°$
$y = 180° - 116° = 64°$
(b) $73° - 46° = 27°$
$x = 180° - 27° = 153°$
$y = 180° - 27° - 24° = 129°$
$x + y = 153° + 129° = 282°$

	Statement	TRUE or FALSE
(i)	$x + y = 272°$	FALSE
(ii)	$y = x - 24°$	TRUE

Section C

1 (a) $8 \times 5 \times 7 = 40 \times 7$
$= 280$
(b) (i) $\sqrt[3]{512} = 8$ cm
Total length of all sides
$= 12 \times 8$
$= 96$ cm
(ii) Total area of all surfaces
$= 6 \times 8^2$
$= 384$ cm^2
(c) (i) $72 = 2^3 \times 3^2$
$90 = 2 \times 3^2 \times 5$
(ii) HCF $= 2 \times 3^2 = 18$
LCM $= 2^3 \times 3^2 \times 5 = 360$

2 (a) 300 m$l \Rightarrow \frac{2.8}{0.3}$ = RM9.33 per l

800 m$l \Rightarrow \frac{6.2}{0.8}$ = RM7.75 per l

1.5 $l \Rightarrow \frac{12}{1.5}$ = RM8.00 per l

800 ml milk. It has the lowest price compared to 300 ml milk and 1.5 ml priced at RM9.33 per litre and RM8.00 per litre.
(b) $p : q = 4 \times 3 : 3 \times 3$
$= 12 : 9$
$p : r = 6 \times 2 : 5 \times 2$
$= 12 : 10$
$p : q : r = 12 : 9 : 10$
(c) 3 units = 9
1 unit = 3
New number of yellow marbles
$= 9 \times 3 + 5$
$= 32$
New number of blue marbles
$= 8 \times 3 + x$
$= 24 + x$

$\frac{32}{24 + x} = \frac{8}{7}$

$\frac{32}{24 + x} = \frac{32}{28}$

$24 + x = 28$
$x = 4$
Number of blue marbles added is 4.

3 (a) (i) $-12x^2y^3z$
(ii) $\frac{-12pq^3r^2}{8pr^3} = -\frac{3q^3}{2r}$
(b) (i) Perimeter $= 2x + 2(2x + 1)$
$= 6x + 2$ cm
(ii) $6x = 24$
$x = 4$
(c) $p + q = 11$ ...①
$p - q = 3$ ...②
① – ②: $2q = 8$
$q = 4$

4 (a) $5 - 2x \leqslant 9$
$-2x \leqslant 4$
$x \geqslant -2$

$\frac{x - 3}{3} < 7 - x$

$x - 3 < 21 - 3x$
$4x < 24$

$x < 6$

$-2 \leq x < 6$

$\therefore x = -2, -1, 0, 1, 2, 3, 4, 5$

(b) $x = 180° - 59° - 58°$

$x = 63°$

$2y + y = 63°$

$3y = 63°$

$y = 21°$

(c) $180° - 90° - 37° = 53$

$x = 180° - 53°$

$x = 127°$

$360° - 204° - 2(37°) = 82°$

$y = 360° - 82° - 127° - 51°$

$y = 100°$

5 (a) (i) P

(ii) Q

(b) (i) $\frac{1}{2} \times 4 \times x = 16$

$2x = 16$

$x = 8$

(ii) Area of parallelogram $KLMN = 8 \times 12$

$= 112 \text{ cm}^2$

Area of shaded region $= 112 - 16 = 96 \text{ cm}^2$

(c) (i) 23

(ii) 79

(d) $\$0.30 - \$0.10 = \$0.20$

The price of cryptocurrency decreases each day.

6 (a) (i) $N \subset M$

(ii) $n(M) = 5$

$n(N') = 6$

(b) $40^2 + 9^2 = 1\,681$

$= 41^2$

Yes, can form a right-angled triangle.

(c) $2.25^2 + 1.3^2 = 6.7525$

$2.55^2 = 6.5025 < 67525$

The wall is slanting towards the ladder.

(d) $QR = \sqrt{29^2 - 20^2}$

$= 21 \text{ cm}$

Area of triangle $PQS = 480$

$\frac{1}{2} \times 20 \times (21 + RS) = 480$

$21 + RS = 48$

$RS = 27 \text{ cm}$