

JAWAPAN

BAB 1

Nombor Nisbah Rational Numbers

BAHAGIAN A

- 1 C
- 2 C
- 3 B
- 4 D
- 5 A
- 6 D
- 7 C
- 8 B

BAHAGIAN B

- 1 (a) ✓
(b) ✗
(c) ✓
(d) ✓
- 2 (a) -10
(b) -5
(c) -6
(d) 375
- 3 (a) 7.55
(b) 1.9
(c) 2
(d) 30

BAHAGIAN C

- 1 (a) $P = -\frac{1}{6}, Q = \frac{1}{2}, R = \frac{5}{6}$
(i) $R + P - Q$
 $= \frac{5}{6} + \left(-\frac{1}{6}\right) - \frac{1}{2}$
 $= \frac{1}{6}$
(ii) $(Q + P) \div R$
 $= \left(\frac{1}{2} + \left(-\frac{1}{6}\right)\right) \div \frac{5}{6}$
 $= \frac{1}{3} \times \frac{6}{5}$
 $= \frac{2}{5}$
(b) (i) -8, 20
(ii) $(-8 \times -2) + (20 \times -2) = 16 - 40$
 $= -24$
(c) $\frac{1}{2} + \frac{1}{4} - \frac{17}{8} = -1\frac{3}{8}$
- 2 (a) 15, -4
(b) (i) -145
(ii) 104
(iii) -22
(iv) -25

- (c) Wang pendahuluan
Down payment
 $= \text{RM}89\,900 \times 10\%$
 $= \text{RM}8\,990$

Wang Puan Syikin
Puan Syikin's money
 $= \text{RM}12\,500 \times \frac{2}{5}$
 $= \text{RM}5\,000$

Wang sumbangan suaminya
Money contributed by her husband
 $= \text{RM}8\,990 - \text{RM}5\,000$
 $= \text{RM}3\,990$

BAB 2

Faktor dan Gandaan Factors and Multiples

BAHAGIAN A

- 1 B
- 2 C
- 3 D
- 4 D
- 5 B
- 6 C
- 7 C

BAHAGIAN B

- 1 A: 45
B: 15
C: 3 atau / or 5
D: 5 atau / or 3
- 2 42, 51, 75, 348
- 3 (a) 12, 24
(b) 30, 60

BAHAGIAN C

- 1 (a) 63, 70, 77, 84
(b) (i) 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
(ii) $1 + 325 = 326$
(c) (i) Gandaan 4:
Multiples of 4:
4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72
Gandaan 6:
Multiples of 6:
6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72
Gandaan 8:
Multiples of 8:
8, 16, 24, 32, 40, 48, 56, 64, 72, 80
Tiga gandaan sepunya bagi 4, 6 dan 8:
Three common multiples of 4, 6 and 8:
24, 48, dan / and 72

2 (a)

5	10,	20,	50
2	2,	4,	10
2	1,	2,	5
5	1,	1,	5
	1	1	1

$$\text{GSTK} / \text{LCM} = 2 \times 2 \times 5 \times 5 = 100$$

(b)

5	10,	20,	50
2	2,	4,	10
	1	2	5

$$\text{FSTB} / \text{HCF} = 2 \times 5 = 10$$

(c) (i) Faktor bagi 30 = 1, 2, 3, 5, 6, 10, 15, 30
Factor of 30

Faktor bagi 50 = 1, 2, 5, 10, 25, 50
Factor of 50

(ii) $30 + 50 = 80$

3 (a) P: 59
Q: 67
R: 79

$$\begin{aligned} (R - Q) \div (Q - P) &= (79 - 67) \div (67 - 59) \\ &= 12 \div 8 \\ &= 1.5 \end{aligned}$$

(b) $63 \div 9 = 7$
 $127 \div 9 = 14.11$

9 bukan faktor sepunya bagi 63 dan 127.
9 is not a common factor of 63 and 127.

(c)

3	60,	150,	180
2	20,	50,	60
5	10,	25,	30
	2	5	6

$$\text{FSTB} / \text{HCF} = 2 \times 3 \times 5 = 30$$

BAB 3

Kuasa Dua, Punca Kuasa Dua, Kuasa Tiga dan Punca Kuasa Tiga Squares, Square Roots, Cubes and Cube Roots

BAHAGIAN A

- 1 B
- 2 A
- 3 B
- 4 D
- 5 B
- 6 D
- 7 D
- 8 A
- 9 D
- 10 B

BAHAGIAN B

- 1 343, 29 791, -3 375, 64
- 2 (a) Benar
True
(b) Palsu
False
(c) Benar
True
(d) Benar
True

$$\begin{aligned} 3 &= 6 \times \frac{9}{49} - \frac{1}{2} \\ &= 1 - \frac{5}{49} - \frac{1}{2} \\ &= \frac{59}{98} \end{aligned}$$

BAHAGIAN C

$$\begin{aligned} 1 (a) \quad q &= \sqrt[3]{\frac{-27}{343}} = \frac{-3}{7} \\ &= \frac{-3}{7} + \left(\frac{-3}{7}\right)^2 = -\frac{12}{49} \end{aligned}$$

$$\begin{aligned} (b) \quad 2(-8) - \sqrt{65\,536} + 25 \\ = -16 - 256 + 25 \\ = -247 \end{aligned}$$

$$\begin{aligned} (c) \quad \text{Panjang sisi} / \text{Length of side} &= \sqrt[3]{1\,331} \\ &= 11 \text{ cm} \end{aligned}$$

Dawai yang diperlukan untuk 6 tanglung
Wire needed for 6 lanterns
 $= (11 \text{ cm} \times 12 \text{ sisi} / \text{sides}) \times 6$
 $= 792 \text{ cm}$

$$\begin{aligned} 2 (a) \quad 16 + \left(\frac{3}{5} - \frac{2}{5}\right) &= 16\frac{1}{5} \\ (b) \quad (i) \quad \sqrt{32 \times 8} &= \sqrt{256} \\ &= 16 \\ (ii) \quad \sqrt[3]{32 \times 2} \times 4 &= 16 \end{aligned}$$

- (c) (i) $5^3 = 125$ pesakit / patients
(ii) $\sqrt[3]{3\,375} = 15$, Hari ke-15 / 15th day
(iii) Jumlah pesakit / Total patients
 $= 1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 7^3$
 $= 784$

BAB 4

Nisbah, Kadar dan Kadaran Ratios, Rates and Proportions

BAHAGIAN A

- 1 B
- 2 B
- 3 C
- 4 B
- 5 C
- 6 B
- 7 A
- 8 C
- 9 B
- 10 B

BAHAGIAN B

- 1 9 : 15, 3 : 5
- 2 (a) $\neq$
(b) $=$
(c) $\neq$
(d) $=$
- 3 (a) 9
(b) 72
(c) 20
(d) 90

BAHAGIAN C

- 1 (a) $a : b = 3 : 8$
 $b : c = 5 : 1$

 $a : b = 3 \times 5 : 8 \times 5 = 15 : 40$
 $b : c = 5 \times 8 : 1 \times 8 = 40 : 8$
 $a : b : c = 15 : 40 : 8$

(b) Panjang / Length : Lebar / Width = 9 : 4
Panjang / Length : Lebar / Width = $x : 28$ cm
Panjang / Length = $(28 \div 4) \times 9 = 63$ cm

(c) Melvin : Jasmin = 8 : 9
Melvin : Jasmin = $x : 171$ cm
Melvin = $(171 \div 9) \times 8 = 152$ cm
 $= 1.52$ m
- 2 (a) 3 jam : 20 minit : 0.75 jam
3 hours : 20 minutes : 0.75 hour
 $= (180 \text{ minit} : 20 \text{ minit} : 45 \text{ minit}) \div 5$
 $(180 \text{ minutes} : 20 \text{ minutes} : 45 \text{ minutes}) \div 5$
 $= 36 : 4 : 9$

- (b) Harga 10 biji plum
The price of 10 plums
 $= (9 \div 6) \times 10 = \text{RM}15$

- (c) Din : Elisa = 3 : 2
Elisa : Fazrul = 6 : 5
Din : Elisa : Fazrul = 9 : 6 : 5

$$\frac{5}{9 + 6 + 5} \times x = 175$$

$$x = (175 \times 20) \div 5$$

$$x = 700$$

Jumlah simpanan Din dan Elisa
Total savings of Din and Elisa
 $= \text{RM}700 - \text{RM}175$
 $= \text{RM}525$

BAB 5

Ungkapan Algebra Algebraic Expressions

BAHAGIAN A

- 1 D
- 2 C
- 3 D
- 4 C
- 5 B
- 6 D
- 7 B
- 8 C
- 9 A
- 10 C

BAHAGIAN B

- 1 $7y + 5, 6b - 21c, 32 - n, \frac{3}{2}a + d$
- 2 (a) $-\frac{7}{9}n^2m$
(b) $-0.25vu$
(c) $21q^2p^4r^5$
(d) acb^3
- 3 (a) $-\frac{3}{4}x^2y^2$
(b) $-\frac{3}{4}x^3$
(c) $-y^2$
(d) $-\frac{3}{4}$

BAHAGIAN C

- 1 (a) 4

(b) (i) $18m^4p^2$
(ii) $\frac{20r^2}{s^2}$
- (c) $5 + 3c$

$$\begin{aligned}(d) \quad & 2(15) - (-2) + \frac{3(15)}{5} \\ & = 30 + 2 + 9 \\ & = 41\end{aligned}$$

$$2 \quad (a) \quad \frac{18ab^2 \times 2c^4}{3a^2b^3} = \frac{12c^4}{ab}$$

$$\begin{aligned}(b) \quad & (2x + 3y - 4 - 6x + 14y - 18) \\ & = 2x - 6x + 3y + 14y - 18 - 4 \\ & = -4x + 17y - 22\end{aligned}$$

$$(c) \quad 4 \text{ kg rambutan} + 2 \text{ kg manggis} / \text{mangosteen} = 38$$

$$2 \text{ kg manggis} / \text{mangosteen} = 38 - 4x$$

$$1 \text{ kg manggis} / \text{mangosteen} = \frac{38 - 4x}{2} = 19 - 2x$$

$$\begin{aligned}3 \quad (a) \quad & (i) \text{ Jumlah jisim} / \text{Total mass} = x + y \\ & (ii) \text{ Jumlah jisim} / \text{Total mass} = 5.3 + 3.8 = 9.2 \text{ kg}\end{aligned}$$

$$\begin{aligned}(b) \quad & (i) 7 - 3x \\ & (ii) 5q + 4p \\ & (iii) 3s + (2 \div y)\end{aligned}$$

$$\begin{aligned}(c) \quad & (i) 12(0.25) - 5(4) + 3 = -14 \\ & (ii) \frac{3 \times 4}{2 \times 0.25} = 24\end{aligned}$$

BAB 6

Persamaan Linear Linear Equations

BAHAGIAN A

- 1 C
- 2 B
- 3 B
- 4 D
- 5 B
- 6 A
- 7 C
- 8 C
- 9 A
- 10 B

BAHAGIAN B

- 1 (a) ✗
(b) ✓
(c) ✓
(d) ✗

$$\begin{aligned}2 \quad & 9y + \boxed{15x} = 18 \dots \textcircled{3} \\ & - \boxed{10y} + 15x = 25 \dots \textcircled{4} \\ & -y = -7 \\ & y = \boxed{7}\end{aligned}$$

- 3 (a) ✓
(b) ✗
(c) ✓
(d) ✓

BAHAGIAN C

$$\begin{aligned}1 \quad (a) \quad & (i) 4x + 7 = 39 \\ & (ii) 4x + 7 = 39 \\ & \quad 4x = 32 \\ & \quad x = \frac{32}{4} \\ & \quad x = 8\end{aligned}$$

$$\begin{aligned}(b) \quad & (i) \frac{4m + 14}{10} = 5 \\ & \quad 4m + 14 = 50 \\ & \quad 4m = 50 - 14 \\ & \quad 4m = 36 \\ & \quad m = 9\end{aligned}$$

$$\begin{aligned}(ii) \quad & 5(x - 9) = x + 11 \\ & \quad 5x - 45 = x + 11 \\ & \quad 5x - x = 11 + 45 \\ & \quad 4x = 56 \\ & \quad x = 14\end{aligned}$$

$$\begin{aligned}(c) \quad & \text{Luas} / \text{Area} = \frac{1}{2} (5)(7 + k) \\ & \quad = 75 \\ & \quad 7 + k = \frac{(75 \times 2)}{5} \\ & \quad 7 + k = 30 \\ & \quad k = 30 - 7 \\ & \quad k = 23\end{aligned}$$

$$2 \quad (a) \quad 3m - 2n = 5 \text{ dan / and } 4m - n = 0$$

$$\begin{aligned}3m - 2n &= 5 \dots \textcircled{1} \\ 4m - n &= 0 \dots \textcircled{2} \\ n &= 4m \dots \textcircled{3}\end{aligned}$$

Gantikan ③ ke dalam ①

Substitute ③ into ①

$$\begin{aligned}3m - 2(4m) &= 5 \\ 3m - 8m &= 5 \\ -5m &= 5 \\ m &= -1\end{aligned}$$

Gantikan $m = -1$ ke dalam ③

Substitute $m = -1$ into ③

$$\begin{aligned}n &= 4m \\ &= 4(-1) \\ &= -4\end{aligned}$$

$$\begin{aligned}(b) \quad & 5x - x = 12 \\ & 4x = 12 \\ & x = 3\end{aligned}$$

(c) $2x + 2y = 80$
 $x + y = 40 \dots \textcircled{1}$
 $x - y = 8 \dots \textcircled{2}$

$2x = 48$
 $x = 24 \text{ cm}$

Gantikan $x = 24$ ke dalam $\textcircled{2}$
 Substitute $x = 24$ into $\textcircled{2}$
 $x - y = 8$
 $24 - y = 8$
 $24 - 8 = y$
 $y = 16 \text{ cm}$

BAB 7

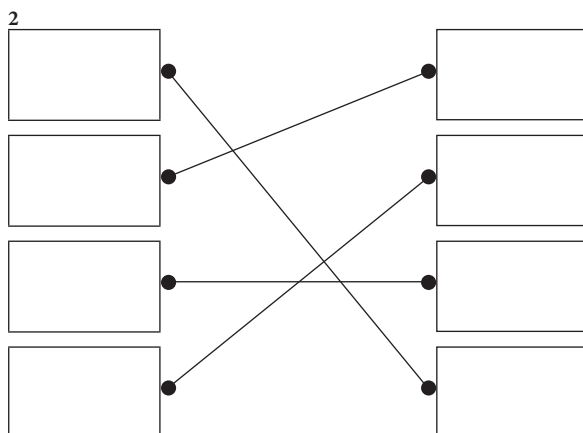
Ketaksamaan Linear Linear Inequalities

BAHAGIAN A

- 1 A
- 2 A
- 3 C
- 4 D
- 5 B
- 6 B
- 7 A
- 8 B
- 9 C
- 10 B

BAHAGIAN B

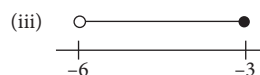
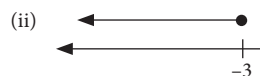
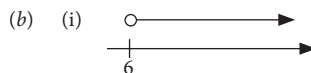
- 1 (a) <
 (b) >
 (c) <
 (d) >



- 3 (a) ✓
 (b) ✗
 (c) ✗
 (d) ✓

BAHAGIAN C

- 1 (a) (i) $z < 85$
 (ii) $c \leq 4$
 (iii) $x < 30$



(c) $-8 < 5x - 3$, $5x - 3 \leq 12$
 $-8 + 3 < 5x$ $5x \leq 12 + 3$
 $-5 < 5x$ $5x \leq 15$
 $-1 < x$ $x \leq 3$
 $x > -1$



Maka / Hence, $-1 < x \leq 3$, $x = 0, 1, 2, 3$

- 2 (a) (i) $x \leq -5 + 13$
 $x \leq 8$
 (ii) $x \geq \frac{1}{4} + \frac{3}{4}$
 $x \geq 1$

- (b) (i) $x \geq 3$
 (ii) $x > -6$
 (iii) $x \geq -4$

(c) $9x - 5 < 40$
 $9x < 45$
 $x < 5$

- 3 (a) (i) $x < 9$
 (ii) $x > -7$
 (iii) $x \geq 20$

(b) $5 - 3x > 20$
 $-3x > 20 - 5$
 $-3x > 15$
 $x < -5$

- (c) (i) $50 - 8x > 4$
(ii) $50 - 8x > 4$
 $-8x > 4 - 50$
 $-8x > -46$
 $x < 5.75$

Bilangan maksimum novel yang boleh dibeli ialah 5.
The maximum number of novels that can be bought is 5.

BAB 8

Garis dan Sudut Lines and Angles

BAHAGIAN A

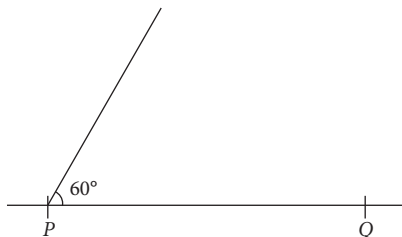
- 1 C
- 2 C
- 3 B
- 4 C
- 5 D
- 6 D
- 7 D
- 8 A
- 9 D
- 10 C

BAHAGIAN B

- 1 (a) Sudut tirus
Acute angle
(b) Sudut tegak
Right angle
(c) Sudut cakah
Obtuse angle
(d) Sudut refleks
Reflex angle
- 2 (a) Sudut konjugat
Conjugate angle
(b) Sudut bertentang bucu
Vertically opposite angle
(c) Sudut pelengkap
Complementary angle
(d) Sudut penggenap
Supplementary angle
- 3 (a) Sudut pedalaman
Interior angle
(b) Sudut sepadan
Corresponding angle
(c) Sudut selang-seli
Alternate angle
(d) Sudut selang-seli
Alternate angle

BAHAGIAN C

1 (a)



(b) (i) $x = 90^\circ - 38^\circ$
 $= 52^\circ$

(ii) $x = 180^\circ - 72^\circ$
 $= 108^\circ$

(iii) $x = 360^\circ - 81^\circ$
 $= 279^\circ$

(c) $6x + 3x = 180^\circ$

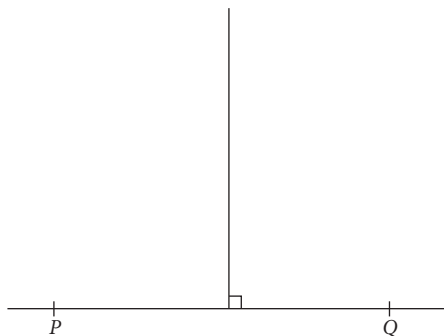
$9x = 180^\circ$
 $x = 20^\circ$

$y = 3x$
 $= 3(20^\circ)$
 $= 60^\circ$

2 (a) (i) $x = 81^\circ$
 $y = 180^\circ - 81^\circ$
 $= 99^\circ$

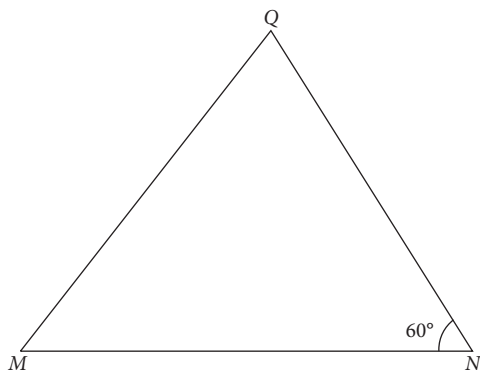
(ii) $x = 105^\circ$
 $y = 75^\circ$

(b)



$$\begin{aligned}
 (c) \quad 6x - 50^\circ + 70^\circ + x + x &= 180^\circ \\
 8x &= 180^\circ - 70^\circ + 50^\circ \\
 8x &= 160^\circ \\
 x &= 20^\circ
 \end{aligned}$$

3 (a)



$$\begin{aligned}
 (b) \quad 90^\circ + 65^\circ + 2x + 3x &= 360^\circ \\
 5x &= 360^\circ - 90^\circ - 65^\circ \\
 5x &= 205^\circ \\
 x &= 41^\circ
 \end{aligned}$$

$$\begin{aligned}
 (c) \quad x &= 180^\circ - 54^\circ \\
 &= 126^\circ
 \end{aligned}$$

$$\begin{aligned}
 y &= 126^\circ - 90^\circ \\
 &= 36^\circ
 \end{aligned}$$

$$\begin{aligned}
 z &= 90^\circ + 54^\circ \\
 &= 144^\circ
 \end{aligned}$$

BAB 9

Poligon Asas Basic Polygons

BAHAGIAN A

- 1 A
- 2 B
- 3 B
- 4 B
- 5 B
- 6 C
- 7 A
- 8 C
- 9 B
- 10 C

BAHAGIAN B

- 1 (a) X
- (b) ✓
- (c) ✓
- (d) X

- 2 (a) 5
- (b) 14
- (c) 27
- (d) 2

- 3 (a) Heksagon
Hexagon
- (b) Heptagon
- (c) Segi tiga
Triangle
- (d) Sisi empat
Quadrilateral

BAHAGIAN C

$$\begin{aligned}
 1 \quad (a) \quad (i) \quad x &= \frac{180^\circ - 76^\circ}{2} \\
 &= 52^\circ
 \end{aligned}$$

$$\begin{aligned}
 (ii) \quad x &= 180^\circ - 90^\circ - 36^\circ \\
 &= 54^\circ
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad (180^\circ - 4x) + (180^\circ - 3x) + x &= 180^\circ \\
 -4x - 3x + x &= 180^\circ - 180^\circ - 180^\circ \\
 -6x &= -180^\circ \\
 x &= 30^\circ
 \end{aligned}$$

$$\begin{aligned}
 (c) \quad 2x + 3x + 90^\circ + 90^\circ &= 360^\circ \\
 5x + 180^\circ &= 360^\circ \\
 5x &= 360^\circ - 180^\circ \\
 5x &= 180^\circ \\
 x &= 36^\circ
 \end{aligned}$$

$$\begin{aligned}
 2 \quad (a) \quad x &= 52^\circ \\
 y &= 180^\circ - 52^\circ \\
 &= 128^\circ
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad \text{Sudut } PSQ / \text{Angle of } PSQ &= 180^\circ - 90^\circ - 30^\circ \\
 &= 60^\circ
 \end{aligned}$$

$$\begin{aligned}
 \text{Sudut } x / \text{Angle of } x &= \frac{60^\circ - 64^\circ}{2} \\
 &= 62^\circ
 \end{aligned}$$

$$\begin{aligned}
 (c) \quad x &= \frac{180^\circ - 54^\circ}{2} \\
 &= 63^\circ
 \end{aligned}$$

$$\begin{aligned}
 y &= 180^\circ - 63^\circ \\
 &= 117^\circ
 \end{aligned}$$

$$\begin{aligned}
 2x + y &= 2(63^\circ) + 117^\circ \\
 &= 243^\circ
 \end{aligned}$$

$$\begin{aligned}
 3 \quad (a) \quad x &= 360^\circ - 94^\circ - 118^\circ - 47^\circ \\
 &= 101^\circ
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad \text{Sudut } UQR / \text{Angle of } UQR &= 360^\circ - 61^\circ - 107^\circ - 82^\circ \\
 &= 110^\circ
 \end{aligned}$$

$$\begin{aligned}
 x + 25^\circ &= 180^\circ - 110^\circ \\
 x + 25^\circ &= 70^\circ \\
 x &= 70^\circ - 25^\circ \\
 x &= 45^\circ
 \end{aligned}$$

$$(c) \quad \angle QRP = \frac{180^\circ - 86^\circ}{2} \\ = 47^\circ$$

$$\angle RTS = \angle UFV = 180^\circ - 41^\circ - 60^\circ \\ = 79^\circ$$

$$\angle y = 180^\circ - 47^\circ - 79^\circ \\ = 54^\circ$$

BAB 10

Perimeter dan Luas Perimeter and Area

BAHAGIAN A

- 1 B
- 2 A
- 3 C
- 4 B
- 5 D
- 6 C
- 7 C
- 8 C
- 9 A
- 10 A

BAHAGIAN B

- 1 (a) $\frac{1}{2} \times pt$
(b) $\frac{1}{2} \times (a + b)t$
(c) $\frac{1}{2} \times ab$
(d) mn
- 2 (a) 16 cm
(b) 18 cm
(c) 22 cm
(d) 15 cm

$$3 \quad \text{Perimeter} = (\boxed{4} \times 10) + \boxed{12} + \boxed{15} \\ = 40 + 27 \\ = \boxed{67} \text{ cm}$$

BAHAGIAN C

- 1 (a) (i) Perimeter = $3 + 3 + 4 + 7$
 $= 17 \text{ cm}$
(ii) Perimeter = $(7 \times 2) + (2 \times 5) + 4$
 $= 28 \text{ cm}$
(b) Luas / Area = $\frac{1}{2} \times (5.8 + 10.2) \times 8$
 $= 64 \text{ cm}^2$

- (c) (i) $2(6x - 2) + 2(x + 3) = 2(3x - 1) + 2(9)$
 $12x + 2x - 6x = -2 + 18 + 4 - 6$
 $8x = 14$
 $x = 1.75 \text{ cm}$
(ii) $2[6(1.75) - 2] + 2(1.75 + 3)$
 $= 17 + 9.5$
 $= 26.5 \text{ cm}$

$$2 \quad (a) \quad \text{Perimeter} = 2(12) + 18 + 2(8) + 3(7) \\ = 24 + 18 + 16 + 21 \\ = 79 \text{ cm}$$

$$(b) \quad \text{Luas / Area} = \left[\frac{1}{2} \times (6 + 8) \times 3 \right] + \left[\frac{1}{2} \times (5 + 8) \times 2.5 \right] \\ = 21 + 16.25 \\ = 37.25 \text{ cm}^2$$

$$(c) \quad \text{Panjang sisi empat VUSR} \\ \text{Length of quadrilateral VUSR} \\ = 16 \div 4 \\ = 4 \text{ cm}$$

Luas kawasan berlerek
Area of the shaded region

$$= \left(\frac{1}{2} \times 12 \times 8 \right) - (4 \times 4) \\ = 48 - 16 \\ = 32 \text{ cm}^2$$

BAB 11

Pengenalan Set Introduction of Set

BAHAGIAN A

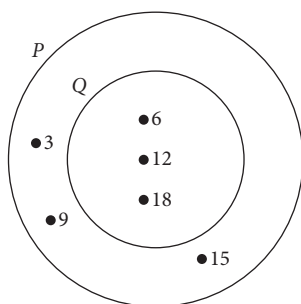
- 1 D
- 2 C
- 3 C
- 4 A
- 5 B
- 6 B
- 7 A
- 8 D
- 9 B
- 10 B

BAHAGIAN B

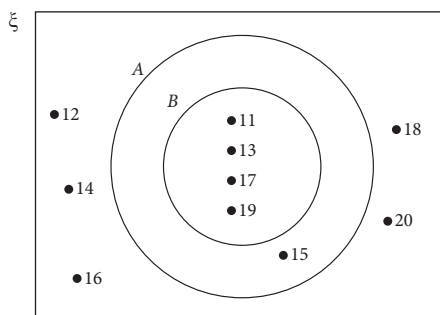
- 1 (a) ✗
(b) ✗
(c) ✓
(d) ✓
- 2 (a) ∈
(b) ∉
(c) ∈
(d) ∉
- 3 (a) ✗
(b) ✗
(c) ✓
(d) ✓

BAHAGIAN C

- 1 (a) (i) $P = \{\text{merah, hijau, kuning}\}$
 $\{\text{red, green, yellow}\}$
(ii) $Q = \{A, I\}$
(iii) $R = \{3, 6, 9\}$
- (b) Bilangan subset / Number of subset
 $= 2^3$
 $= 8$
- $\{ \}, \{p\}, \{q\}, \{r\}, \{p, q\}, \{p, r\}, \{q, r\}, \{p, q, r\}$
- (c) $P = \{3, 6, 9, 12, 15, 18\}$
 $Q = \{6, 12, 18\}$
 $Q \subset P$



- 2 (a) (i) $2^2 = 4$
(ii) $\{ \}, \{2\}, \{5\}, \{2, 5\}$
- (b) (i) $n(A) = 7$
(ii) $n(B) = 7$
(iii) $n(C) = 8$
- (c) (i) $\xi = \{11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$
 $A = \{11, 13, 15, 17, 19\}$
 $B = \{11, 13, 17, 19\}$



- (ii) $A' = \{12, 14, 16, 18, 20\}$

BAB 12

Pengendalian Data Data Handling

BAHAGIAN A

- 1 B
2 D
3 B
4 B
5 D
6 B
7 B
8 C

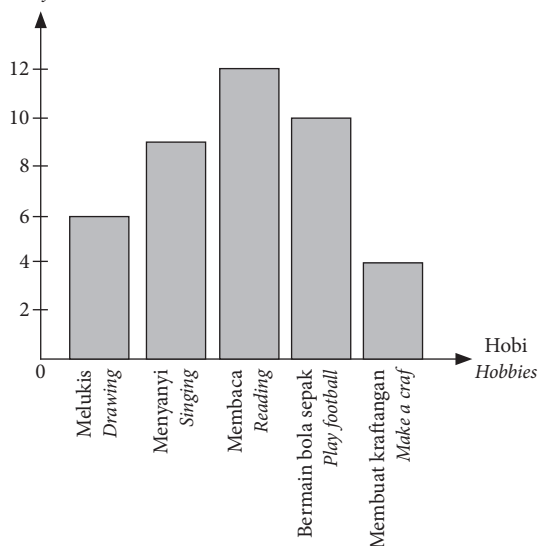
BAHAGIAN B

- 1 • Tinjauan / Survey
• Temu bual / Interview
• Eksperimen / Experiment
• Pemerhatian / Observation

2

Hobi Murid Tingkatan 2 Bestari Hobbies of Form 2 Bestari

Bilangan murid
Number of students



3

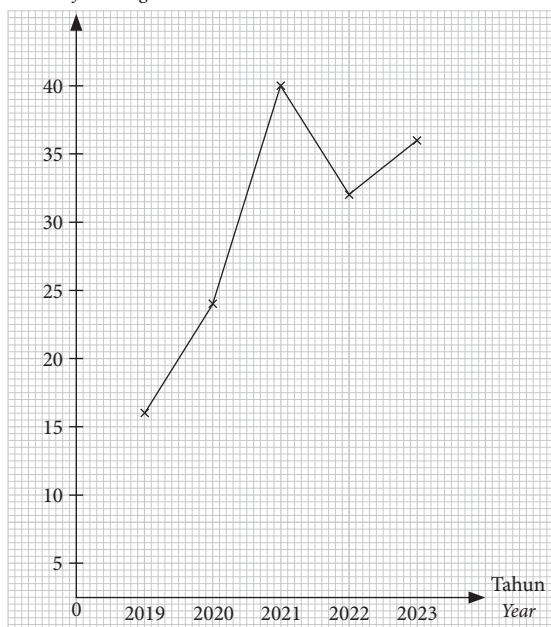
Gred <i>Grade</i>	Kekerapan <i>Frequency</i>
A	8
B	5
C	4
D	3

BAHAGIAN C

1 (a)

Bilangan Bangunan
Number of Buildings

Bilangan bangunan
Number of buildings



- (b) Jumlah bangunan di Bandar P
Total of buildings in Town P
 $= 16 + 24 + 40 + 32 + 36$
 $= 148$

(c)

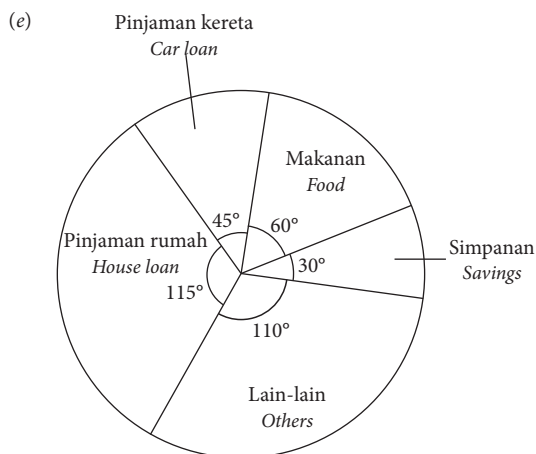
Bilangan bangunan <i>Number of buildings</i>	Sudut sektor carta pai <i>Sector angle of a pie chart</i>
16	$\frac{16}{148} \times 360^\circ = 38.9^\circ$
24	$\frac{24}{148} \times 360^\circ = 58.4^\circ$
40	$\frac{40}{148} \times 360^\circ = 97.3^\circ$
32	$\frac{32}{148} \times 360^\circ = 77.8^\circ$
36	$\frac{36}{148} \times 360^\circ = 87.6^\circ$

2 (a) $x = 360^\circ - 30^\circ - 60^\circ - 115^\circ - 110^\circ$
 $= 45^\circ$

- (b) Pinjaman rumah
House loan

(c) Nilai simpanan
Value of savings
 $= \frac{30^\circ}{360^\circ}$
 $= \frac{1}{12}$

(d) $\frac{45^\circ + 115^\circ}{360^\circ} \times \text{RM3 600}$
 $= \text{RM1 600}$



BAHAGIAN A

- 1 B
- 2 B
- 3 C
- 4 D
- 5 D
- 6 C
- 7 B
- 8 B
- 9 C
- 10 B

BAHAGIAN B

- 1 (a) ✓
(b) ✗
(c) ✗
(d) ✓
- 2 (a) 10
(b) 8
(c) 24
(d) 24
- 3 (a) PQ
(b) QR
(c) PR
(d) $PR^2 = PQ^2 + QR^2$

BAHAGIAN C

- 1 (a) $x^2 = 20^2 + 21^2$
 $x^2 = 400 + 441$
 $x^2 = 841$
 $x = \sqrt{841}$
 $x = 29 \text{ cm}$
(b) (i) Perimeter
 $= 6 + 15 + 15 + 8 + 10$
 $= 54 \text{ m}$
 $= 54 \times 100$
 $= 5\,400 \text{ cm}$
(ii) Jumlah luas tanah / Total land area
 $= \frac{1}{2} \times [(15 + 8) + 15] \times 6$
 $= \frac{1}{2} \times 38 \times 6$
 $= 114 \text{ m}^2$
- 2 (a) Panjang EG / Length of EG
 $= \sqrt{25^2 - 20^2}$
 $= \sqrt{625 - 400}$
 $= \sqrt{225}$
 $= 15 \text{ cm}$

$$\begin{aligned}\text{Panjang } FG / \text{Length of } FG &= \sqrt{17^2 - 15^2} \\ &= \sqrt{289 - 225} \\ &= \sqrt{64} \\ &= 8 \text{ cm}\end{aligned}$$

$$\begin{aligned}(b) \quad (i) \quad \text{Panjang } MN / \text{Length of } MN \\ &= \sqrt{8^2 + 5^2} \\ &= \sqrt{64 + 25} \\ &= \sqrt{89} \\ &= 9.43 \text{ m}\end{aligned}$$

$$\begin{aligned}(ii) \quad \text{Panjang } NQ / \text{Length of } NQ \\ &= \sqrt{12^2 + 5^2} \\ &= \sqrt{144 + 25} \\ &= \sqrt{169} \\ &= 13 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Perimeter} &= 8 + 12 + 13 + 9.43 \\ &= 42.43 \text{ m}\end{aligned}$$

$$\begin{aligned}\text{Luas / Area} &= \left(\frac{1}{2} \times 12 \times 5\right) + \left(\frac{1}{2} \times 8 \times 5\right) \\ &= 30 + 20 \\ &= 50 \text{ m}^2\end{aligned}$$

$$\begin{aligned}3 \quad (a) \quad (i) \quad QR &= \sqrt{(6x)^2 + (8x)^2} \\ &= \sqrt{36x^2 + 64x^2} \\ &= 10x \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Perimeter} &= 336 \text{ cm} \\ 10x + 6x + 8x &= 336 \\ 24x &= 336 \\ x &= 14 \text{ cm}\end{aligned}$$

$$\begin{aligned}(ii) \quad \text{Luas / Area} \\ &= \frac{1}{2} \times 84 \times 112 \\ &= 4\,704 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}(b) \quad \text{Panjang } TR / \text{Length of } TR &= \sqrt{24^2 + 10^2} \\ &= \sqrt{576 + 100} \\ &= \sqrt{676} \\ &= 26 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Perimeter kawasan berlorek} \\ \text{Perimeter of the shaded region} \\ &= 14 + 26 + 24 + 24 \\ &= 88 \text{ cm}\end{aligned}$$

UJIAN PERTENGAHAN SESI AKADEMIK

BAHAGIAN A

- 1 B
- 2 B
- 3 C
- 4 B
- 5 A
- 6 B
- 7 D
- 8 C
- 9 C
- 10 A
- 11 C
- 12 C
- 13 A
- 14 D
- 15 C
- 16 C
- 17 B
- 18 C
- 19 A
- 20 D

BAHAGIAN B

- 1 (a) ✗
(b) ✓
(c) ✓
(d) ✗
- 2 (a) (i) 9
(ii) 15

(b) (i) 6
(ii) 25
- 3 (a) 55
(b) 6
(c) -1
(d) 8
- 4
$$\begin{array}{r} -18 - (-12) \\ -3 \\ \hline = \frac{-18 \boxed{+} 12}{-3} \\ \hline = \frac{\boxed{-6}}{-3} \\ \hline = \boxed{-3} \\ \hline = \boxed{2} \end{array}$$
- 5 (a) 2, 7
(b) 3, 11

BAHAGIAN C

- 1 (a) $1.75 \times (-2.2) + 2.5$
 $= -3.85 + 2.5$
 $= -1.35$

(b) $\frac{3}{8} \text{ m} \times 12$
 $= 4.5 \text{ mm}$

Reben tidak mencukupi untuk menghias dulang.
The ribbon is not enough to decorate the trays.

(c)

2	4,	6,	12
2	2,	3,	6
3	1,	3,	3
	1,	1,	1

$$\text{GSTK} / \text{LCM} = 2 \times 2 \times 3$$

$$= 12$$

2	4,	6,	12
	2,	3,	6

$$\text{FSTB} / \text{HCF} = 2$$

- 2 (a) $12p - 5q + 3$
 $= 12(3) - 5(-2) + 3$
 $= 36 + 10 + 3$
 $= 49$

(b) $\frac{10xy - 15w}{5} - 2(9 - w + 3xy)$
 $= \frac{10xy}{5} - \frac{15w}{5} - 18 + 2w - 6xy$
 $= 2xy - 3w - 18 + 2w - 6xy$
 $= -4xy - w - 18$

(c) (i) $\frac{x}{8} + 3 = 20$

(ii) $\frac{x}{8} + 3 = 20$
 $\frac{x}{8} = 20 - 3$
 $\frac{x}{8} = 17$
 $x = 17 \times 8$
 $x = 136$
- 3 (a) (i) $\left(\frac{3}{5}\right)^2 \times \sqrt[3]{1\,000\,000}$
 $= \frac{9}{25} \times 100$
 $= 36$

$$\begin{aligned}
 \text{(ii)} \quad & \sqrt[3]{\frac{8}{125}} \div \sqrt{\frac{4}{49}} + \left(\frac{3}{5}\right)^2 \\
 &= \frac{2}{5} \times \frac{7}{2} + \frac{9}{25} \\
 &= \frac{7}{5} + \frac{9}{25} \\
 &= \frac{35+9}{25} \\
 &= \frac{44}{25}
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & 10 + (+5) + (-8) \\
 &= 10 + 5 - 8 \\
 &= 7
 \end{aligned}$$

Kedudukan baru lif di tingkat ke-7.
The new position of the lift is at 7th floor.

$$\begin{aligned}
 \text{(c)} \quad \text{(i)} \quad & 324 \div 4 = 81 \\
 & 324 \text{ ialah gandaan bagi 4.} \\
 & 324 \text{ is a multiple of 4.}
 \end{aligned}$$

$$\begin{aligned}
 \text{(ii)} \quad & 1\,870 \div 15 = 124.67 \\
 & 1\,870 \text{ ialah bukan gandaan bagi 15.} \\
 & 1\,870 \text{ is not a multiple of 15.}
 \end{aligned}$$

$$\begin{aligned}
 4 \quad \text{(a)} \quad & 1 \text{ km} : 200 \text{ m} : 0.45 \text{ km} \\
 & 1\,000 \text{ m} : 200 \text{ m} : 450 \text{ m} \\
 & 20 : 4 : 9
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & \text{Faktor bagi 368: 1, 2, 4, 8, 16, 23, 46, 92, 184, 368} \\
 & \text{Factor of 368}
 \end{aligned}$$

$$\begin{aligned}
 & \text{Faktor perdana: 2, 23} \\
 & \text{Prime factor} \\
 & \text{Beza / Difference} = 23 - 2 \\
 & \quad \quad \quad = 21
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad & x + 5y = 10 \dots \textcircled{1} \\
 & -3x + 4y = 8 \dots \textcircled{2} \\
 & 3x + 15y = 30 \dots \textcircled{3} \\
 & \textcircled{2} + \textcircled{3} : 19y = 38 \\
 & \quad \quad \quad y = 2
 \end{aligned}$$

Gantikan $y = 2$ ke dalam $\textcircled{1}$
Substitute $y = 2$ into $\textcircled{1}$

$$\begin{aligned}
 x + 5(2) &= 10 \\
 x + 10 &= 10 \\
 x &= 0
 \end{aligned}$$

$$\begin{aligned}
 5 \quad \text{(a)} \quad & K = -6.6 \\
 & M = -5.6 \\
 & N = -5.0
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & \text{Pekali bagi } x = -\frac{3}{7}xy \\
 & \text{Coefficient of } x \\
 & \text{Pekali bagi } y = -\frac{3}{7}x^2 \\
 & \text{Coefficient of } y \\
 & \text{Pekali bagi } xy = -\frac{3}{7}x \\
 & \text{Coefficient of } xy
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad & \left(3 \times \left(\frac{1}{3}\right) + \frac{5}{3}\right) \div (-4) \\
 &= -\frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 6 \quad \text{(a)} \quad \text{(i)} \quad & 3m + n - 1 - 4m + 8n - 5 + 8 - 3m - 2n \\
 &= 3m - 4m - 3m + n + 8n - 2n - 1 - 5 + 8 \\
 &= -4m + 7n + 2
 \end{aligned}$$

$$\begin{aligned}
 \text{(ii)} \quad & 2y = 7(2) + 11 \\
 & 2y = 14 + 11 \\
 & 2y = 25 \\
 & y = 12.5
 \end{aligned}$$

$$\begin{aligned}
 \text{(b)} \quad & m + p = 72 \\
 & m = 2p
 \end{aligned}$$

$$\begin{aligned}
 \text{(c)} \quad & \text{Luas kawasan berlorek} \\
 & \text{Area of the shaded region} \\
 &= (12 \times 12) - (3 \times 3) - (6 \times 6) \\
 &= 144 - 9 - 36 \\
 &= 99 \text{ cm}^2
 \end{aligned}$$

UJIAN AKHIR SESI AKADEMIK

BAHAGIAN A

- 1 B
- 2 D
- 3 A
- 4 B
- 5 A
- 6 D
- 7 C
- 8 A
- 9 B
- 10 A
- 11 C
- 12 C
- 13 A
- 14 C
- 15 C
- 16 A
- 17 D
- 18 C
- 19 C
- 20 D

BAHAGIAN B

- 1 (a) 2
(b) 1 atau / or 3
(c) 3 atau / or 1
(d) 15
- 2 (a) Carta pai
Pie chart
(b) Carta palang
Bar chart
(c) Graf garis
Line graph
(d) Plot titik
Dot plot

3 (a) (i) $x + y = 21$
(ii) $x - 5 = 11$

(b) $-6.73, 1\frac{2}{5}$

4 $\left(1\frac{3}{4} \times 0.32\right) + [17 - (-45)]$
 $= \left(\frac{7}{4} \times 0.32\right) + (17 + 45)$
 $= 0.56 + 62$
 $= 62.56$

- 5 (a) ✓
(b) ✗
(c) ✓
(d) ✗

BAHAGIAN C

1 (a) (i) $Q = 0.8 - 0.6$
 $= 0.2$

$P = 1.4 + 0.6$
 $= 2$

(ii) $2P - 3Q$
 $= 2(2) - 3(0.2)$
 $= 3.4$

(b) (i) $-\frac{1}{2}, -\frac{3}{10}, \frac{1}{5}, \frac{4}{5}, \frac{9}{10}$

(ii) $\frac{9}{10} - \left(-\frac{1}{2}\right)$
 $= 1\frac{2}{5}$

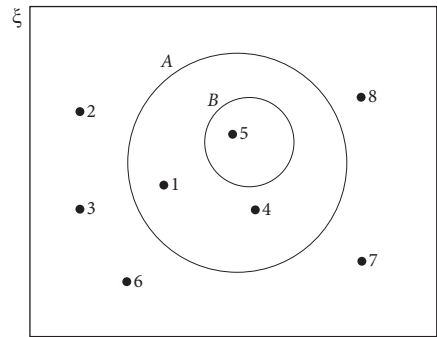
(c) 7, 14, 21, 28, 35, 42, 49

2 (a) $\frac{(20 \div 100) \text{ m}}{(1 \div 60) \text{ minit} / \text{ minutes}}$
 $= 12 \text{ m per minit} / \text{ minutes}$

(b) Harga bagi 1 kg / Price for 1 kg
 $= \frac{\text{RM}13.50}{5}$
 $= \text{RM}2.70$

Harga bagi 18 kg / Price for 18 kg
 $= \text{RM}2.70 \times 18$
 $= \text{RM}48.60$

(c) (i)



(ii) $B' = \{1, 2, 3, 4, 6, 7, 8\}$

3 (a)

Suhu ($^{\circ}\text{C}$) Temperature ($^{\circ}\text{C}$)	Kekerapan Frequency
29	4
30	3
31	2
32	3
33	1
34	1
35	1

(b) $x = 180^{\circ} - 55^{\circ} - 55^{\circ}$
 $= 70^{\circ}$
 $y = 55^{\circ}$

(c) $k - 5m = 12 \dots \textcircled{1}$
 $3k + 2m = 2 \dots \textcircled{2}$
 $k = 12 + 5m \dots \textcircled{3}$

Gantikan persamaan ③ ke dalam ②
Substitute equation ③ into ②

$3(12 + 5m) + 2m = 2$
 $36 + 15m + 2m = 2$
 $17m = 2 - 36$
 $17m = -34$
 $m = -2$

Gantikan $m = -2$ ke dalam ③
Substitute $m = -2$ into ③

$k = 12 + 5m$
 $k = 12 + 5(-2)$
 $k = 2$

4 (a) (i) 170.30
(ii) $(170.30 - 95.30)^2$
 $= 75^2$
 $= 5\,625$

(b) $-3x \geq -10 + 4$
 $-3x \geq -6$
 $x \leq 2$

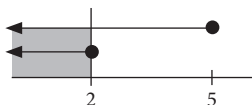
$$\frac{1}{4}(12x + 20) \leq 20$$

$$3x + 5 \leq 20$$

$$3x \leq 20 - 5$$

$$3x \leq 15$$

$$x \leq 5$$



$\therefore x \leq 2$

(c) (i) $x = 180^\circ - 56^\circ$
 $= 124^\circ$
 $y = 180^\circ - 120^\circ$
 $= 60^\circ$

(ii) $2x - y$
 $= 2(124^\circ) - 60^\circ$
 $= 188^\circ$

5 (a) Panjang $BC = \sqrt{20^2 - 16^2}$
Length of BC
 $= 12\text{ cm}$

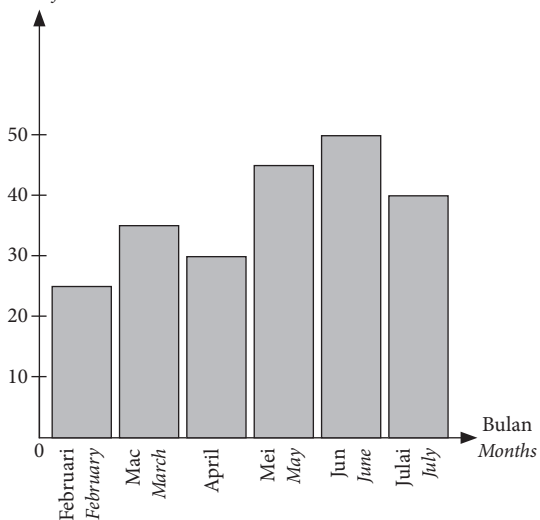
Panjang $CE = \frac{1}{4} \times 12$
Length of CE
 $= 3\text{ cm}$

Panjang $DE = \sqrt{5^2 - 3^2}$
Length of DE
 $= 4\text{ cm}$

(b)

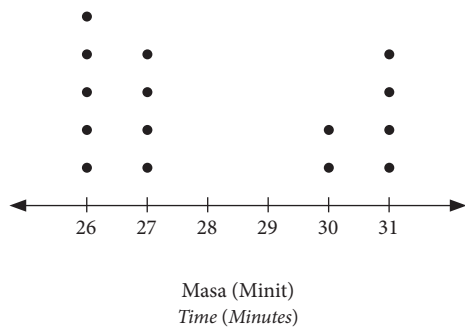
Jualan Minuman Tin Sales of Canned Drinks

Bilangan minuman tin
Number of canned drinks



(c) Luas kawasan berlorek
Area of the shaded region
 $= \left(\frac{1}{2} \times 8 \times 7\right) - \left(\frac{1}{2} \times 1.4 \times 1.28\right)$
 $= 28 - 0.896$
 $= 27.104\text{ cm}^2$

6 (a)



(b) (i) $x = 180^\circ - 54^\circ$
 $= 126^\circ$

(ii) $\sqrt[3]{-125} + \sqrt{169}$
 $= -5 + 13$
 $= 8$

(c)

2	6, 8, 14
2	3, 4, 7
2	3, 2, 7
3	3, 1, 7
7	1, 1, 7
	1, 1, 1

$$\text{GSTK} / \text{LCM} = 2 \times 2 \times 2 \times 3 \times 7$$

$$= 168$$