

Jawapan

Pentaksiran Sumatif

Kertas 2

Bahagian/Section A

$$1 \quad \frac{1}{p-2} - \frac{2}{3} = \frac{1}{p}$$

$$\frac{1}{p-2} - \frac{1}{p} = \frac{2}{3}$$

$$\frac{p - (p-2)}{p(p-2)} = \frac{2}{3}$$

$$\frac{2}{p^2 - 2p} = \frac{2}{3}$$

$$6 = 2(p^2 - 2p)$$

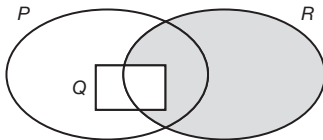
$$2p^2 - 4p - 6 = 0$$

$$(2p + 2)(p - 3) = 0$$

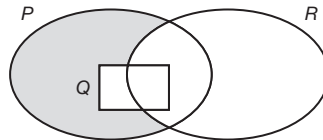
$$p = -1 \text{ atau/or } p = 3$$

4

(a) $Q' \cap R$



(b) $P \cap (Q \cup R)'$



5 (a) $V = \{A, B, C, D, E\}$

$$n(V) = 5$$

(b) $E = \{(A, B), (A, D), (A, E), (B, B), (B, C), (B, C), (B, D), (C, D)\}$

$$n(E) = 8$$

6 $y \geq 0, x \geq 0, y \leq \frac{3x}{5} + 1, y < -x + 10$

7 (a) Tempoh masa Ming meluangkan masa di perpustakaan = $2.5 - 1 = 1.5$ jam

Time spent in library by Ming = $2.5 - 1 = 1.5$ hours

(b) Kadar perubahan jarak terhadap masa

Rate of change of distance over time

$$= -60 \text{ km j}^{-1}$$

Kecerunan CD/Gradient of CD = -60

$$\frac{y_d - 0}{0 - 2.5} = -60$$

$$y_d = 150 \text{ km}$$

2 (a)

$$\begin{array}{r} 32_4 \\ + 231_4 \\ \hline 323_4 \end{array}$$

$$\therefore 32_4 + 231_4 = 323_4$$

(b)

$$\begin{array}{r} 421_5 \\ - 242_5 \\ \hline 124_5 \end{array}$$

$$\therefore 421_5 - 242_5 = 124_5$$

3 (a) **Pernyataan** kerana kita dapat menentukan bahawa ayat itu adalah **palsu**.

Statement because we can determine that the sentence is **false**.

(b) **Bukan pernyataan** kerana ayat itu merupakan suatu arahan dan tiada nilai kebenaran.

Not a statement because the sentence is an instruction and no truth value.

5 (c) Jarak di antara rumah Peter dengan perpustakaan

Distance between Peter's house and library

$$= 150 \text{ km} - 50 \text{ km} = 100 \text{ km}$$

(d) Rumah Ming /Ming's house

8 (a) Julat_{kedai} /Range_{retail shop} = $68 - 19 = 49$

$$\text{Julat}_{\text{atas talian}} / \text{Range}_{\text{e-commerce stores}} = 60 - 15 = 45$$

$$\text{Julat}_{\text{kedai}} - \text{Julat}_{\text{atas talian}}$$

$$\text{Range}_{\text{retail shop}} - \text{Range}_{\text{e-commerce stores}} = 49 - 45 = 4$$

(b) Harga bagi pakaian di atas talian adalah lebih murah kerana kebanyakan cerapan tertumpu pada bahagian atas plot batang-dan-daun.

The prices of clothes from e-commerce stores are cheaper because most of the values are concentrated on the top part of the stem-and-leaf plot.

KEK CAKE	PUTARAN/TURN 1	PUTARAN/TURN 2	KESUDAHAN OUTCOME
0	Kuning/Yellow Red/Merah	Kuning/Yellow	$P(Y)$ $P(R, Y)$
1	Hijau/Green Red/Merah	Hijau/Green	$P(G)$ $P(R, G)$

P (Murid mendapat sekeping kek/student get a piece of cake)

$$= P(G) + P(R, G)$$

$$= \frac{1}{8} + \left(\frac{3}{8}\right)\left(\frac{1}{8}\right)$$

$$= \frac{11}{64}$$

$$n(\text{kek/cakes}) = 980 \times \frac{11}{64} = 168.4375 \approx 169$$

Bilangan kek yang harus disediakan ialah 169.

The number of cakes has to be prepared is 169.

- 10 (a) Jumlah pendapatan Puan Amira/Total income of Puan Amira
 $= \text{RM}7\,000 + \text{RM}1\,500$
 $= \text{RM}8\,500$
 Jumlah perbelanjaan Puan Amira/Total expenses of Puan Amira
 $= \text{RM}2\,000 + \text{RM}300 + \text{RM}1\,800 + \text{RM}300 +$
 $\text{RM}900 + \text{RM}3\,000$
 $= \text{RM}8\,300$
 Aliran tunai Puan Amira/Puan Amira's cash flow
 $= \text{RM}8\,500 - \text{RM}8\,300$
 $= \text{RM}200$
- (b) Jumlah pendapatan Puan Amira/Total income of Puan Amira = $\text{RM}7\,000$
 Jumlah perbelanjaan Puan Amira/Total expenses of Puan Amira = $\text{RM}8\,300$
 Aliran tunai Puan Amira/Puan Amira's cash flow
 $= \text{RM}7\,000 - \text{RM}8\,300$
 $= -\text{RM}1\,300$
 Aliran tunai Puan Amira menjadi $-\text{RM}1\,300$. Hal ini adalah tidak baik kerana Puan Amira mungkin akan mengguna perkhidmatan kad kredit untuk mengatasi masalah kewangannya. Jika hal ini tidak diurus dengan baik, Puan Amira berkemungkinan mempunyai hutang kad kredit dengan kadar bunga yang tinggi dan lama-kelamaan akan menjadi mufliis.
 Puan Amira's cash flow becomes $-\text{RM}1\,300$. This is not a good sign as Puan Amira might use the services of credit card to overcome her financial problems. If she does not manage well, she might be in credit card debts with high interest rates and later she may become bankrupt.

Bahagian/Section B

11 (a) $L(x) = (30 \times 20) - (30 - 2x)(20 - 2x)$
 $= 600 - 600 + 100x - 4x^2$

$$L(x) = -4x^2 + 100x$$

(b) $-4x^2 + 100x = 0$

$$4x^2 - 100x = 0$$

$$x(4x - 100) = 0$$

$$x = 0 \text{ atau/or } x = 25$$

Luas maksimum berlaku apabila $x = 12.5$.

Maximum area occur when

$$L(x) = -4(12.5)^2 + 100(12.5)$$

$$= 625 \text{ cm}^2$$

(c) $-4x^2 + 100x = 336$

$$4x^2 - 100x + 336 = 0$$

$$x^2 - 25x + 84 = 0$$

$$(x - 4)(x - 21) = 0$$

$$x = 4 \text{ atau/or } x = 21 \text{ (Ditolak/Rejected)}$$

(d) $22 \text{ cm} + 22 \text{ cm} + 12 \text{ cm} + 12 \text{ cm} = 68 \text{ cm}$

12 (a) $T_n = 3 + 4(n - 1)$
 $= 4n - 1, n = 1, 2, 3, 4, \dots$

$$S_n = \frac{n}{2}(6 + 4(n - 1))$$

$$= \frac{n}{2}(2 + 4n)$$

$$= n(1 + 2n), n = 1, 2, 3, 4, \dots$$

(b) $S_n = 136$

$$n(1 + 2n) = 136$$

$$2n^2 + n - 136 = 0$$

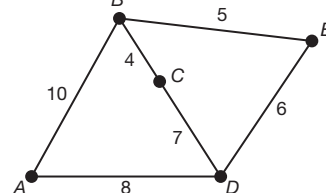
$$(2n + 17)(n - 8) = 0$$

$$n = 8$$

(c) $T_n = 4(8) - 1$
 $= 31$

13 (a) A, B, C, D dan/and E

(b)



(c) $AB = 10, AD = 8, BC = 4, BE = 5$ dan/and $CD = 7$.

14 (a) $\frac{1}{2}(y + 15)3 = 4(30)$

$$y + 15 = 80$$

$$y = 65 \text{ km j}^{-1}/\text{km h}^{-1}$$

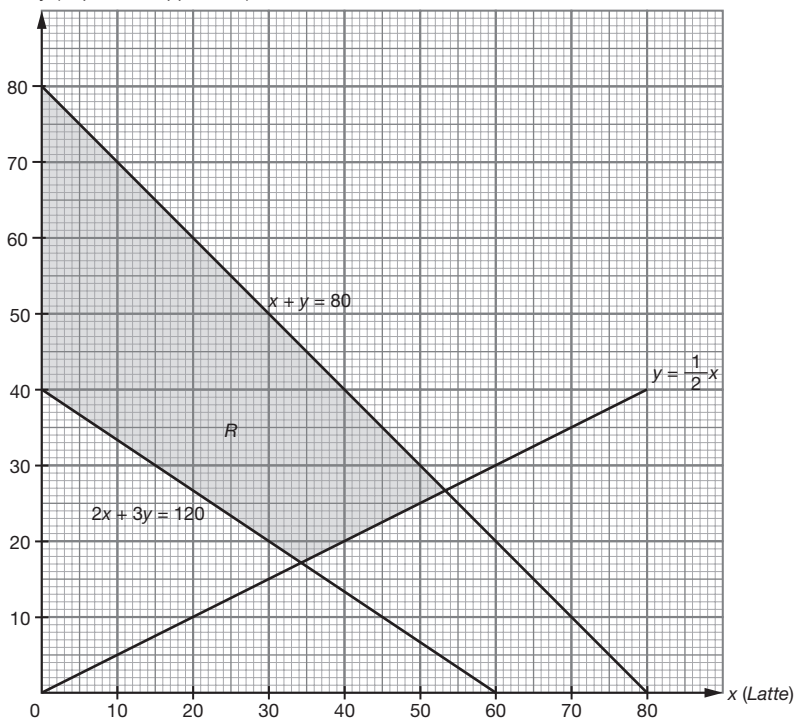
- (b) $\frac{120 + 30 + 43}{7} = 27.57 \text{ km j}^{-1}$
- (c) Zarah tersebut mengalami laju seragam 15 km j^{-1} sejauh 30 km selama 2 jam .
The particle moves with uniform speed 15 km h^{-1} for 30 km in 2 hours .
- (d) Zarah tersebut bergerak dengan pecutan 6.5 km j^{-2} sejauh 43 km selama 2 jam .
The particle moves with an acceleration of 6.5 km h^{-2} for 43 km in 2 hours .

- 15 (a) $\text{Min}/\text{Mean} = \frac{51}{10} = 5.1$
 $\text{Varians}/\text{Variance} = \frac{265}{10} - 5.1^2 = 0.49$
- (b) $\text{Min}/\text{Mean} = 5.1 \times \frac{2}{3} = 3.4$
 $\text{Varians}/\text{Variance} = 0.49 \times \left(\frac{2}{3}\right)^2 = 0.2178$
- (c) 9 ialah pencilan. Apabila nilai yang jauh daripada min ditambahkan, min dan sisihan piawai baharu menjadi semakin besar.
9 is an outlier. When the value that has a greater difference from mean is added, the new mean and standard deviation will be larger.

Bahagian/Section C

16 (a) $2 + 1 + 5 + 2y + 2 + 4 + 3 + 4x + 1 = 32$
 $2y + 4x = 14$
 $y + 2x = 7 \dots\dots \textcircled{1}$

(b) y (Kapucino/Cappuccino)



- (c) (i) 53
(ii) $15 \leq x \leq 50$
(iii) $26 \leq y \leq 60$

$$3 + 1 + 5 + 4x + 1 = 2 + 1 + 5 + 2y + 2 + 2$$

$$10 + 4x = 12 + 2y$$

$$4x - 2y = 2$$

$$2x - y = 1 \dots\dots \textcircled{2}$$

$$(1) - (2): 2y = 6$$

$$y = 3$$

Gantikan $y = 3$ ke dalam persamaan (1):

Substitute $y = 3$ into equation (1):

$$3 + 2x = 7$$

$$2x = 4$$

$$x = 2$$

Oleh itu/Hence, $x = 2, y = 3$.

(b) $4 + 2y + 2 + 4x + 1$
 $= 4 + 2(3) + 2 + 4(2) + 1$
 $= 21$

(c) $3 + 2 + 5 = 10$

(d) $2y + 2 + 5 = 2(3) + 2 + 5 = 13$

(e) $4 + 3 + 4x + 1 = 8 + 4(2) = 16$

(f) $\frac{4 + 2 + 2y + 2}{32} = \frac{4 + 2 + 2(3) + 2}{32}$
 $= \frac{14}{32}$
 $= \frac{7}{16}$

17 (a) $x + y \leq 80, y \geq \frac{1}{2}x$ dan/and $10x + 15y \geq 600$
atau/or $2x + 3y \geq 120$

- (d) Tidak, sebab $(18, 20)$ berada di luar rantau berlorek.
No, because $(18, 20)$ is out of the shaded region.