

# PENYELESAIAN LENGKAP

## Ujian Akhir Sesi Akademik (UASA)

### Bahagian A

- 1 A Bukan jujukan. Tiada pola.  
*Not a sequence. No pattern.*

$$+5 \ +5 \ +5 \ +5$$

- B  $-8, -3, 2, 7, 12, \dots$

Jujukan  
*Sequence*

- C Bukan jujukan. Tiada pola.  
*Not a sequence. No pattern.*  
D Bukan jujukan. Tiada pola.  
*Not a sequence. No pattern.*

Jawapan/Answer: **B**

- 2 A  $3(m+4) = 3m + 3(4)$   
 $= 3m + 12$

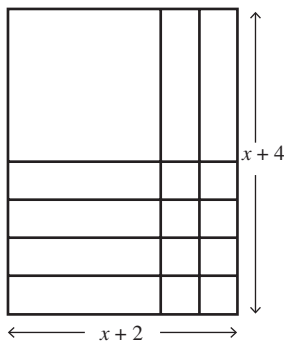
B  $5(2-p) = 5(2) - 5p$   
 $= 10 - 5p$

C  $(r+1)(3r+2) = 3r^2 + 2r + 3r + 2$   
 $= 3r^2 + 5r + 2$

D  $(2w-5)(5w-2) = 10w^2 - 4w - 25w + 10$   
 $= 10w^2 - 29w + 10$

Jawapan/Answer: **D**

3



Jumlah luas bagi A, B dan C

*Total area of A, B and C*

= Luas segi empat tepat

*Area of rectangle*

$$= (x+2)(x+4)$$

Jawapan/Answer: **A**

4  $\frac{1}{2}r = 3k$

$$3k = \frac{1}{2}r$$

$$k = \frac{1}{6}r$$

Jawapan/Answer: **B**

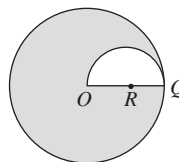
- 5 A Salah/Wrong  
B Betul/Correct  
C Betul/Correct  
D Betul/Correct

Jawapan/Answer: **A**

- 6 A Benar/True  
B Benar/True  
C Palsu/False  
D Benar/True

Jawapan/Answer: **C**

7



Perimeter bagi rantau berlorek = 124 cm

*Perimeter of the shaded region = 124 cm*

$$2 \times \frac{22}{7} \times r + \frac{22}{7} \times \frac{1}{2}r + r = 124$$

$$\frac{44}{7}r + \frac{11}{7}r + r = 124$$

$$\frac{62}{7}r = 124$$

$$r = \frac{7}{62} \times 124$$

$$= 14$$

Luas bagi rantau berlorek

*Area of the shaded region*

$$= \frac{22}{7} \times 14^2 - \frac{1}{2} \times \frac{22}{7} \times 7^2$$

$$= 616 - 77$$

$$= 539 \text{ cm}^2$$

Jawapan/Answer: **D**

- 8 A Bentangan/A net  
B Bentangan/A net  
C Bukan bentangan/Not a net  
D Bentangan/A net

Jawapan/Answer: **C**

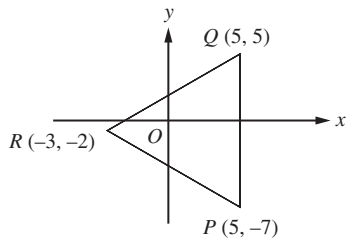
- 9 A Betul/Correct  
B Betul/Correct  
C Salah/Wrong  
D Betul/Correct

Jawapan/Answer: **C**

- 10 A Betul/Correct  
B Betul/Correct  
C Betul/Correct  
D Salah/Wrong

Jawapan/Answer: **D**

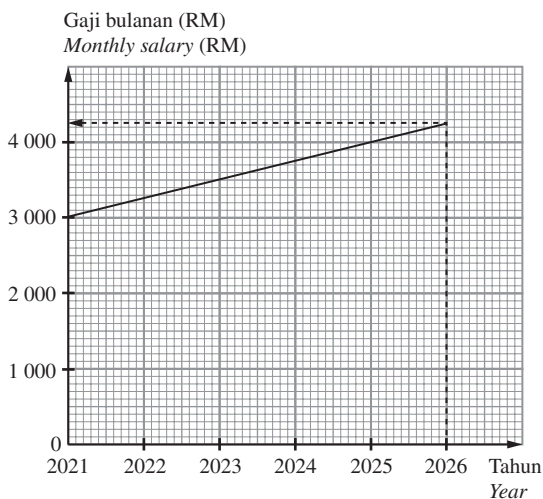
11



$$\begin{aligned}
 PQ &= 5 - (-7) \\
 &= 5 + 7 \\
 &= 12 \text{ unit/units} \\
 \text{Jarak titik R dari PQ} \\
 \text{Distance of point R from PQ} \\
 &= 5 - (-3) \\
 &= 5 + 3 \\
 &= 8 \text{ unit/units} \\
 \text{Luas bagi segi tiga PQR} \\
 \text{Area of triangle PQR} \\
 &= \frac{1}{2} \times 12 \times 8 \\
 &= 48 \text{ unit}^2/\text{units}^2 \\
 \text{Jawapan/Answer: C}
 \end{aligned}$$

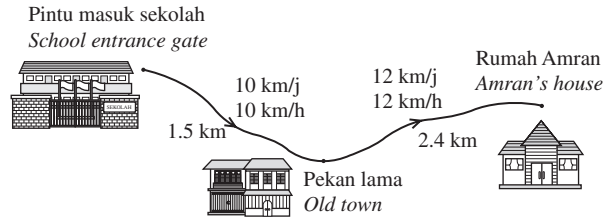
- 12 A Fungsi. Setiap nilai  $x$  hanya mempunyai satu nilai  $y$ .  
*A function. Each value of  $x$  has only one value of  $y$ .*  
 B Fungsi. Setiap nilai  $x$  hanya mempunyai satu nilai  $y$ .  
*A function. Each value of  $x$  has only one value of  $y$ .*  
 C Bukan fungsi. Nilai  $x = -1$  mempunyai dua nilai  $y$ , 3 dan  $-2$ .  
*Not a function. The value  $x = -1$  has two values of  $y$ , 3 and  $-2$ .*  
 D Fungsi. Setiap nilai  $x$  hanya mempunyai satu nilai  $y$ .  
*A function. Each value of  $x$  has only one value of  $y$ .*  
 Jawapan/Answer: C

13



Pada tahun 2026, gaji bulanan Encik Shukur ialah RM4 250.  
*In 2026, the monthly salary of Encik Shukur is RM4 250.*  
 Jawapan/Answer: B

14



Perjalanan dari pintu masuk sekolah ke pekan lama:  
*Journey from the school entrance gate to the old town:*  
 Masa yang diambil  
 Time taken

$$\begin{aligned}
 &= \frac{1.5}{10} \\
 &= 0.15 \text{ jam/hour}
 \end{aligned}$$

Perjalanan dari pekan lama ke rumahnya:  
*Journey from the old town to his house:*  
 Masa yang diambil  
 Time taken

$$\begin{aligned}
 &= \frac{2.4}{12} \\
 &= 0.2 \text{ jam/hour}
 \end{aligned}$$

Jumlah masa perjalanan dari pintu masuk sekolah ke rumahnya  
*Total journey time from the school entrance gate to his house*

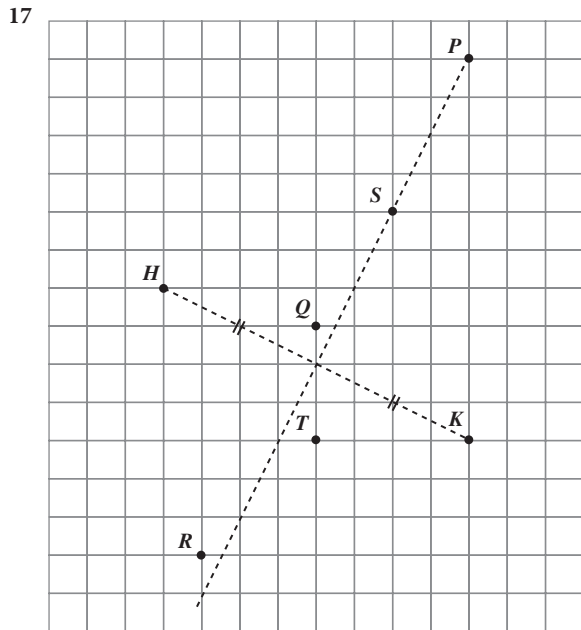
$$\begin{aligned}
 &= 0.15 + 0.2 \\
 &= 0.35 \text{ jam/hour} \\
 &= 21 \text{ minit/minutes} \\
 &\quad 1 \ . \ 3 \ 0 \ \text{p.m.} \\
 &+ \quad \quad \quad 2 \ 1 \\
 \hline
 &\quad 1 \ . \ 5 \ 1 \ \text{p.m.}
 \end{aligned}$$

Waktu Amran tiba di rumahnya ialah pada pukul 1.51 p.m.  
*The time Amran arrived at his house is at 1.51 p.m.*

Jawapan/Answer: C

- 15 A Betul/Correct  
 Kecerunan = 0  
 Gradient = 0  
 B Betul/Correct  
 Kecerunan/Gradient  
 $= -\frac{-6}{-3}$   
 $= -2$   
 C Betul/Correct  
 Kecerunan/Gradient  
 $= -\frac{-2}{4}$   
 $= \frac{1}{2}$   
 D Salah/Wrong  
 Kecerunan/Gradient  
 $= \frac{5}{3}$   
 Jawapan/Answer: D

- 16 Segi tiga F  $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$  Segi tiga G  
 Triangle F  $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$  Triangle G  
 Segi tiga M  $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$  Segi tiga C  
 Triangle M  $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$  Triangle C  
 Jawapan/Answer: C



Paksi bagi pantulan itu ialah garis lurus PS.  
 The axis of the reflection is the straight line PS.

Jawapan/Answer: B

- 18 Jualan pada hari yang pertama = RM520  
 Sales on the first day = RM520  
 Min jualan bagi seluruh minggu = RM600  
 Mean sales for the whole week = RM600  

$$\frac{\text{Jumlah jualan dalam minggu itu}}{7} = \text{RM600}$$

$$\frac{\text{Total sales in the week}}{7} = \text{RM600}$$

Jumlah jualan dalam minggu itu

Total sales in the week

$$= \text{RM600} \times 7$$

$$= \text{RM4 200}$$

Jumlah jualan bagi 6 hari yang lain dalam minggu itu

Total sales for the other 6 days in the week

$$= \text{RM4 200} - \text{RM520}$$

$$= \text{RM3 680}$$

Jawapan/Answer: D

- 19 Kumpulan Alfa:  
 Alpha group:  
 Kebarangkalian eksperimen untuk mendapat gambar  
 Experimental probability to obtain a head

$$= \frac{6}{10}$$

$$= 0.6$$

Kumpulan Beta:

Beta group:

Kebarangkalian eksperimen untuk mendapat gambar  
 Experimental probability to obtain a head

$$= \frac{45}{100}$$

$$= 0.45$$

Kumpulan Gama:

Gamma group:

Kebarangkalian eksperimen untuk mendapat gambar  
 Experimental probability to obtain a head

$$= \frac{20}{50}$$

$$= 0.4$$

Kumpulan Lambda:

Lambda group:

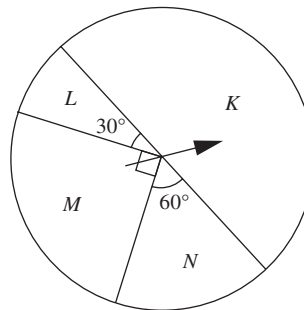
Kebarangkalian eksperimen untuk mendapat gambar  
 Experimental probability to obtain a head

$$= \frac{255}{500}$$

$$= 0.51$$

Jawapan/Answer: B

20



$P$ (jarum penunjuk berhenti di sektor K)

$P$ (pointer needle stops at sector K)

$$= \frac{180^\circ}{360^\circ}$$

$$= \frac{1}{2}$$

$P$ (jarum penunjuk berhenti di sektor L)

$P$ (pointer needle stops at sector L)

$$= \frac{30^\circ}{360^\circ}$$

$$= \frac{1}{12}$$

$P$ (jarum penunjuk berhenti di sektor M)

$P$ (pointer needle stops at sector M)

$$= \frac{90^\circ}{360^\circ}$$

$$= \frac{1}{4}$$

$P$ (jarum penunjuk berhenti di sektor N)

$P$ (pointer needle stops at sector N)

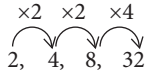
$$= \frac{60^\circ}{360^\circ}$$

$$= \frac{1}{6}$$

Jawapan/Answer: D

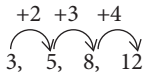
**Bahagian B**

1 (a) (i)



Tiada pola. Bukan jujukan.  
No pattern. Not a sequence. X

(ii)



Ada pola. Jujukan.  
Has a pattern. A sequence. ✓

(b)

$$p + 5 = 8 + 13$$

$$p + 5 = 21$$

$$p = 16$$

$$2p + q = 13 + 21$$

$$2(16) + q = 34$$

$$32 + q = 34$$

$$q = 2$$

2 (a) (i)

$$\frac{2}{3k} + \frac{1}{12k} = \frac{8+1}{12k}$$

$$= \frac{9}{12k}$$

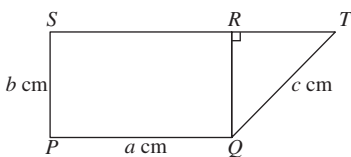
$$= \frac{3}{4k}$$

(ii)  $\frac{6}{r-1} \times \frac{r^2-1}{27} = \frac{6}{r-1} \times \frac{(r+1)(r-1)}{27}$

$$= \frac{2}{1} \times \frac{r+1}{9}$$

$$= \frac{2(r+1)}{9}$$

(b)



(i) Perimeter rajah

Perimeter of diagram

$$= a + b + a + b + c$$

$$= (2a + 2b + c) \text{ cm}$$

(ii) Luas rajah

Area of diagram

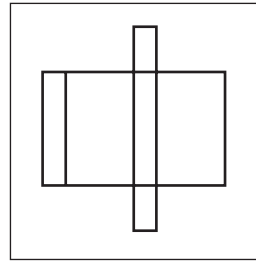
$$= (a)(b) + \frac{1}{2}(b)(b)$$

$$= \left(ab + \frac{1}{2}b^2\right) \text{ cm}^2$$

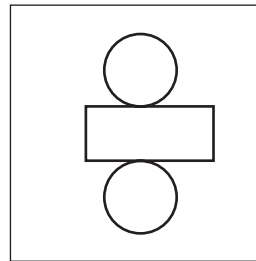
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Bentangan  
Net

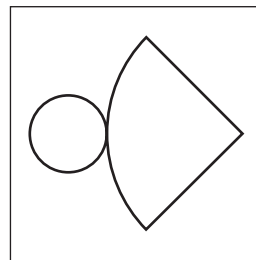
Bentuk tiga dimensi  
Three-dimensional shape



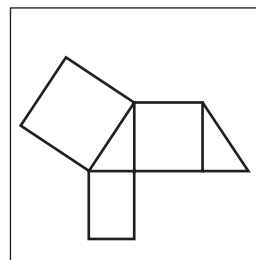
Silinder  
Cylinder



Kuboid  
Cuboid

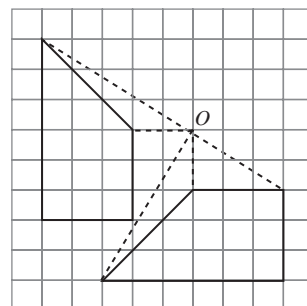


Prisma  
Prism



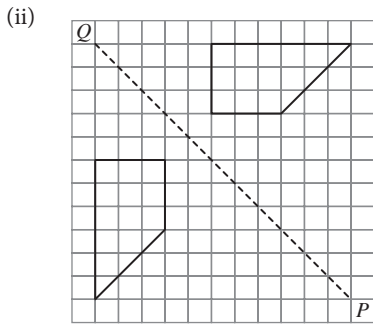
Kon  
Cone

4 (a) (i)



Putaran (pada titik O)

Rotation (about point O)

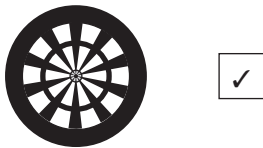


Pantulan (pada paksi PQ)  
Reflection (in the axis PQ)

(b) (ii)



(iii)



- 5 (a) (i) 11 berulang paling kerap.  
Mod bagi markah = 11  
11 is repeated the most frequent.  
Mode of the marks = 11

Benar/True

(ii) Min markah

Mean mark

$$= \frac{2 + 5 + 8 + 10 + 11 + 11 + 15 + 18}{8}$$

$$= \frac{80}{8}$$

$$= 10$$

Palsu/False

(b) (i)  $n = 15$

Nilai tengah bagi data ialah 38.

Median bagi umur = 38 tahun

The centre value of data is 38.

Median of the age = 38 years

Palsu/False

(ii) 41 berulang paling kerap.

Mod bagi umur = 41 tahun

41 repeated the most frequent.

Mode of the age = 41 years

Palsu/False

### Bahagian C

1 (a) Baris/Row 1:  $3 = 4(1) - 1$

Baris/Row 2:  $7 = 4(2) - 1$

Baris/Row 3:  $11 = 4(3) - 1$

Baris/Row 4:  $15 = 4(4) - 1$

⋮

Bilangan paip besi pada baris ke- $n$ ,

Number of iron pipes in the  $n^{\text{th}}$  row,

$$T_n = 4n - 1, n = 1, 2, 3, 4, \dots$$

Apabila/When  $n = 15$ ,

$$T_{15} = 4(15) - 1$$

$$= 59$$

Bilangan paip besi pada baris ke-15 ialah 59 batang.

Number of iron pipes in the 15<sup>th</sup> row is 59.

$$(b) (i) \begin{array}{r|l} 6x & -7 & -21x \\ 3x & +2 & +12x \\ \hline 18x^2 & -14 & -9x \end{array}$$

$$18x^2 - 9x - 14 = (6x - 7)(3x + 2)$$

(ii)  $9m^2 + 16n(4n - 3m)$

$$= 9m^2 + 64n^2 - 48mn$$

$$= 9m^2 - 48mn + 64n^2$$

$$= (3m)^2 - 2(3m)(8n) + (8n)^2$$

$$= (3m - 8n)^2$$

$$(c) \begin{aligned} & \frac{3t - w}{9t + 27w} \div \frac{9t^2 - w^2}{12t^2 + 36tw} \\ &= \frac{3t - w}{9t + 27w} \times \frac{12t^2 + 36tw}{9t^2 - w^2} \\ &= \frac{3t - w}{9(t + 3w)} \times \frac{12t(t + 3w)}{(3t + w)(3t - w)} \\ &= \frac{1}{3} \times \frac{4t}{3t + w} \\ &= \frac{4t}{3(3t + w)} \end{aligned}$$

2 (a) (i)  $v^2 = u^2 + 2as$

$$2as = v^2 - u^2$$

$$a = \frac{v^2 - u^2}{2s}$$

(ii) Apabila  $u = 12$ ,  $v = 16$  dan  $s = 136$ ,

When  $u = 12$ ,  $v = 16$  and  $s = 136$ ,

$$a = \frac{16^2 - 12^2}{2(136)}$$

$$= \frac{112}{272}$$

$$= \frac{7}{17}$$

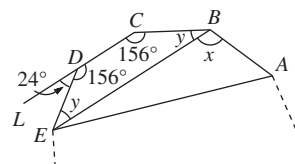
(b) (i)  $n = \frac{360^\circ}{24^\circ}$

$$= 15$$

Bilangan sisi bagi poligon sekata itu ialah 15.

Number of sides of the regular polygon is 15.

(ii)



Sudut pedalaman

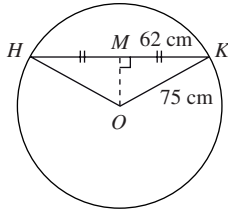
Interior angle

$$= 180^\circ - 24^\circ$$

$$= 156^\circ$$

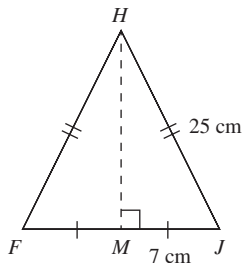
$$\begin{aligned} \angle CDE = \angle BCD = \angle ABC &= 156^\circ \\ y + y + 156^\circ + 156^\circ &= 360^\circ \\ 2y + 312^\circ &= 360^\circ \\ 2y &= 48^\circ \\ y &= 24^\circ \\ x + 24^\circ &= 156^\circ \\ x &= 132^\circ \end{aligned}$$

(c)



$$\begin{aligned} OM^2 &= 75^2 - 62^2 \\ &= 1\,781 \\ OM &= 42.2 \text{ cm} \\ \text{Ketinggian air} \\ \text{Height of water} \\ &= 75 + 42.2 \\ &= 117.2 \text{ cm} \end{aligned}$$

3 (a)

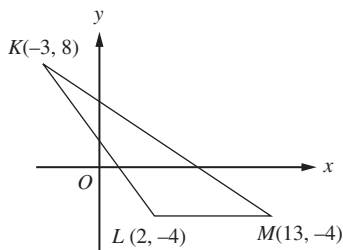


$$\begin{aligned} HM^2 &= 25^2 - 7^2 \\ &= 576 \\ HM &= 24 \text{ cm} \end{aligned}$$

Isi padu bagi pepejal gabungan  
Volume of the combined solid

$$\begin{aligned} &= \frac{1}{2} \times 14 \times 24 \times 12 + \frac{1}{2} \times \frac{1}{3} \times \frac{22}{7} \times 7^2 \times 24 \\ &= 2\,016 + 616 \\ &= 2\,632 \text{ cm}^3 \end{aligned}$$

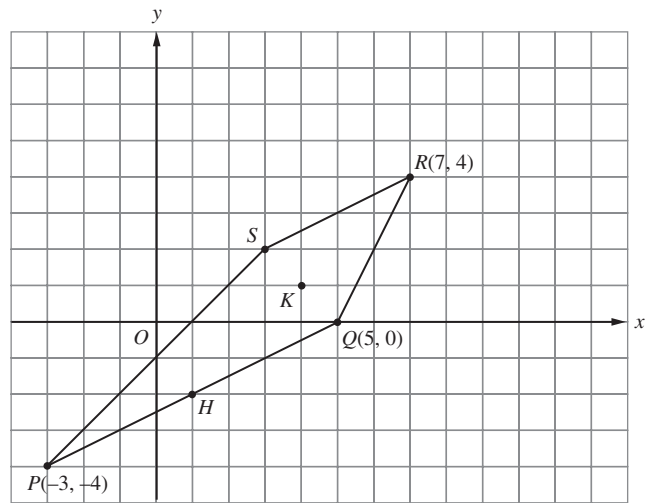
(b)



$$\begin{aligned} LM &= 13 - 2 \\ &= 11 \text{ unit/units} \\ KL &= \sqrt{(-3 - 2)^2 + (8 + 4)^2} \\ &= \sqrt{(-5)^2 + 12^2} \\ &= \sqrt{169} \\ &= 13 \text{ unit/units} \\ KM &= \sqrt{(-3 - 13)^2 + (8 + 4)^2} \\ &= \sqrt{(-16)^2 + 12^2} \\ &= \sqrt{400} \\ &= 20 \text{ unit/units} \end{aligned}$$

Perimeter bagi segi tiga KLM  
Perimeter of the triangle KLM  
 $= 11 + 13 + 20$   
 $= 44 \text{ unit/units}$

(c) (i)



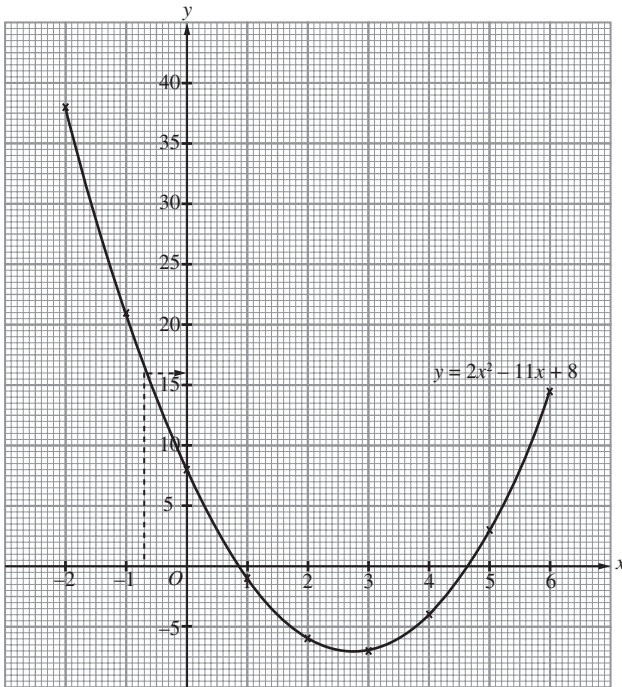
$$H(1, -2), K(4, 1), S(3, 2)$$

$$(ii) HR : KR = 2 : 1$$

4 (a) Apabila/When  $x = -1$ ,  
 $y = 2(-1)^2 - 11(-1) + 8$   
 $= 2 + 11 + 8$   
 $= 21$   
 Apabila/When  $x = 6$ ,  
 $y = 2(6)^2 - 11(6) + 8$   
 $= 72 - 66 + 8$   
 $= 14$

x	-2	-1	0	1	2	3	4	5	6
y	38	21	8	-1	-6	-7	-4	3	14

(b) (i)



(ii) Apabila/When  $x = -0.7, y = 16$

(c) (i) Pecutan/Acceleration

$$= \frac{21 - 15}{30}$$

$$= \frac{6}{30}$$

$$= \frac{1}{5} \text{ m/s}^2$$

(ii)  $\frac{v - 21}{20} = -\frac{1}{2}$

$$v - 21 = -10$$

$$v = 11$$

5 (a) Koordinat bagi titik N ialah (8, 0).

Coordinates of point N are (8, 0).

Koordinat bagi titik K ialah (0, -4).

Coordinates of point K are (0, -4).

Koordinat bagi titik F

Coordinates of point F

$$= \left( \frac{4 + 8}{2}, \frac{12 + 0}{2} \right)$$

$$= (6, 6)$$

Kecerunan FK

Gradient of FK

$$= \frac{6 - (-4)}{6 - 0}$$

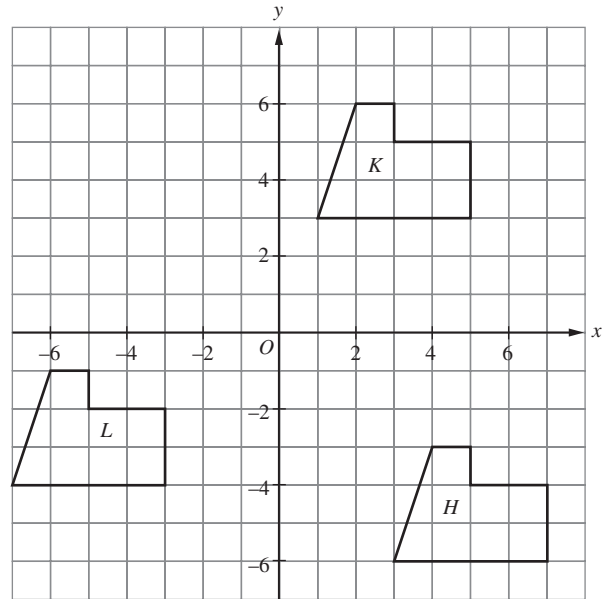
$$= \frac{6 + 4}{6}$$

$$= \frac{10}{6}$$

$$= \frac{5}{3}$$

(b) (i)  $T = \begin{pmatrix} 2 \\ -9 \end{pmatrix}$

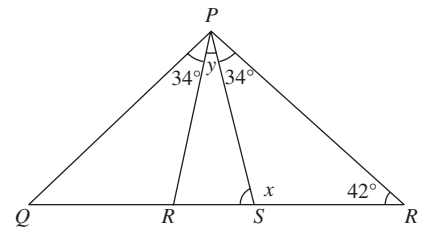
(ii)



(c) (i) Transformasi itu ialah suatu pantulan. Paksi pantulan ialah garis pembahagi dua sama serenjang bagi garis RS.

The transformation is a reflection. The axis of reflection is the perpendicular bisector of line RS.

(ii)



$$\angle RPS = 34^\circ$$

$$x = 34^\circ + 42^\circ$$

$$= 76^\circ$$

$$y = 180^\circ - 76^\circ - 76^\circ$$

$$= 28^\circ$$

6 (a) Min/Mean

$$= \frac{4(3) + 10(8) + 8(13) + 5(18) + 3(23)}{4 + 10 + 8 + 5 + 3}$$

$$= \frac{12 + 80 + 104 + 90 + 69}{30}$$

$$= \frac{355}{30}$$

$$= \text{RM}11.83$$

(b) (i)  $P(\text{satu tin minuman Cola dipilih}) = \frac{1}{3}$

$P(\text{a can of Cola drink is chosen}) = \frac{1}{3}$

$$\frac{5}{5 + 8 + x} = \frac{1}{3}$$

$$\frac{5}{13 + x} = \frac{1}{3}$$

$$13 + x = 15$$

$$x = 2$$

(ii)  $P(\text{bukan satu tin minuman Mirinda dipilih})$   
 $P(\text{not a can of Mirinda drink is chosen})$

$$= \frac{1}{3} + \frac{2}{15}$$

$$= \frac{7}{15}$$

Kaedah alternatif

Alternative method

$P(\text{satu tin minuman Mirinda dipilih})$

$P(\text{a can of Mirinda drink is chosen})$

$$= \frac{8}{15}$$

$P(\text{bukan satu tin minuman Mirinda dipilih})$

$P(\text{not a can of Mirinda drink is chosen})$

$$= 1 - \frac{8}{15}$$

$$= \frac{7}{15}$$

(c)  $S = \{1, 2, 3, 4, \dots, 20\}$

$$n(S) = 20$$

(i)  $A = \text{Peristiwa bahawa satu kuasa dua sempurna dipilih}$

$A = \text{Event that a perfect square is drawn}$

$$= \{1, 4, 9, 16\}$$

$$n(A) = 4$$

$$P(A) = \frac{n(A)}{n(S)}$$

$$= \frac{4}{20}$$

$$= \frac{1}{5}$$

(ii)  $B = \text{Peristiwa bahawa satu nombor perdana ganjil dipilih}$

$B = \text{Event that an odd prime number is drawn}$

$$= \{3, 5, 7, 11, 13, 17, 19\}$$

$$n(B) = 7$$

$$P(B) = \frac{n(B)}{n(S)}$$

$$= \frac{7}{20}$$