

Section A
Bahagian A

[52 marks]
[52 markah]

Answer all questions in this section.
Jawab semua soalan dalam bahagian ini.

- 1 (a) Based on Diagram 1, state three inequalities which satisfies the shaded region.
Berdasarkan Rajah 1, nyatakan tiga ketaksamaan yang memuaskan kawasan berlorek.

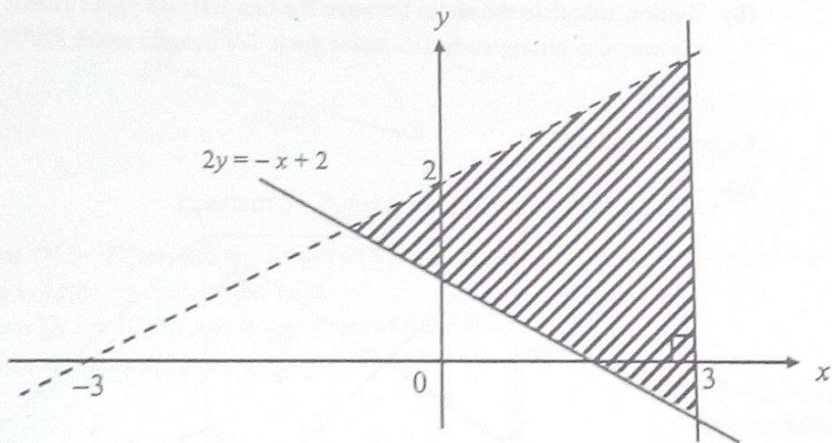


Diagram 1/Rajah 1

[3 marks]
[3 markah]

Answer / Jawapan :

- (i) $x \leq 3$
(ii) $2y \geq -x$ @ setara
(iii) $y < \frac{2}{3}x + 2$

- 2 (a) A tennis player throws a tennis ball whose distance of the ball from the ground after t seconds is $(6t - t^2)$ m.
How long does it takes for the tennis ball to reach a height of 5 m?
Seorang pemain tenis membalik sebiji bola tenis dengan jarak bola itu dari atas lantai selepas t saat ialah $(6t - t^2)$ m.
Berapakah masa yang diperlukan untuk bola tenis itu mencapai ketinggian 5 m?

[4 marks]
[4 markah]

Answer / Jawapan :

$$t^2 - 6t + 5 = 0$$

$$(t-1)(t-5) = 0$$

$$t = 1, t = 5$$

- 3 (a) A total of 500 tickets have been sold for a charity concert. Tickets sold for adults and children are sold at RM7.50 and RM4.00 respectively. The amount obtained from the sale of the ticket is RM3312.50. How many adult tickets and children tickets were sold?

Sebanyak 500 keping tiket telah dijual untuk satu konsert amal. Tiket yang dijual bagi orang dewasa dan kanak-kanak masing-masing dijual dengan harga RM7.50 dan RM4.00. Jumlah yang didapati daripada jualan tiket tersebut adalah sebanyak RM3312.50. Berapakah bilangan tiket dewasa dan tiket kanak-kanak yang telah dijual?

[4 marks]
[4 markah]

Answer / Jawapan :

$$x + y = 500 \quad | \quad 7.5x + 4y = 3312.50$$

$$3.5x = 1312.50 \quad | \quad \text{setara}$$

$$\text{Tiket kanak-kanak} = 125$$

$$\text{Tiket dewasa} = 375$$

- 4 Diagram 4 in the answer space shows a right prism with a uniform cross-section in the shape of a right-angled triangle RST . M is the midpoint of PQ .

Rajah 4 di ruang jawapan menunjukkan sebuah prisma tegak dengan keratan rentas seragam dalam bentuk segi tiga bersudut tegak RST . M ialah titik tengah PQ .

- (a) On Diagram 4 in the answer space, mark the angle between line TM and the plane $TSPU$ and label as θ .
Pada Rajah 4 di ruang jawapan, tandakan sudut di antara garis TM dengan satah $TSPU$ dan label sebagai θ .
- (b) Hence, calculate the angle between the line TM and plane $TSPU$.
Seterusnya, hitung sudut di antara garis TM dengan satah $TSPU$ tersebut.

[3 marks]
[3 markah]

Answer / Jawapan:

(a)

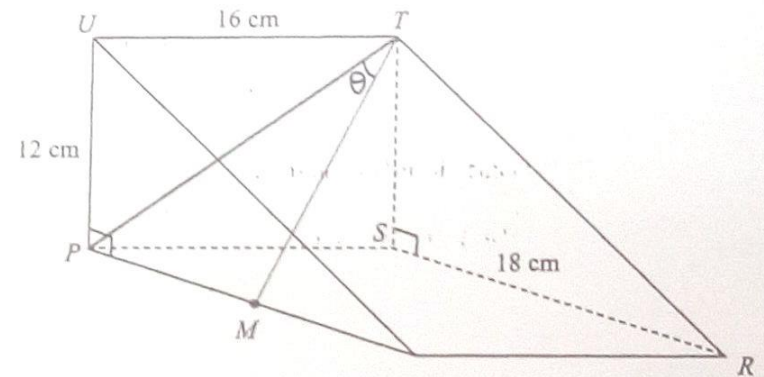


Diagram 4 / Rajah 4

(b)

$$\tan \theta = \frac{9}{\sqrt{12^2 + 16^2}}$$

$$\theta = 24.23 / 24^{\circ}14'$$

Diagram 5 shows a combined solid consists of a right prism and a right pyramid which are joined at the plane PQRS. Right angle triangle PQU is the uniform cross section of the prism.

Rajah 5 menunjukkan sebuah gabungan pepejal yang terdiri daripada sebuah prisma tegak dan sebuah piramid tegak yang dicantumkan pada satah PQRS. Segi tiga bersudut tegak PQU adalah keratan rentas bagi prisma itu.

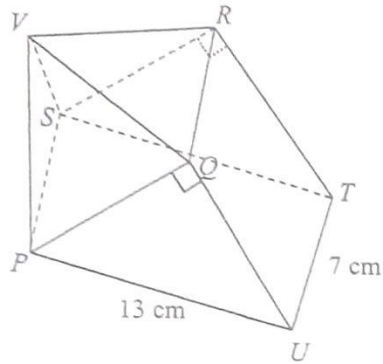


Diagram 5 / Rajah 5

It is given that $QU = 12$ cm and the height of the pyramid is 8 cm. Calculate the volume, in cm^3 , of the solid.

Diberi bahawa $QU = 12$ cm dan tinggi piramid ialah 8 cm. Hitung isipadu, dalam cm^3 , pepejal itu.

[4 marks]
[4 markah]

Answer/ Jawapan:

$$\frac{1}{3} \times 5 \times 7 \times 8$$

$$\frac{1}{2} \times 12 \times 5 \times 7$$

$$\frac{1}{3} \times 5 \times 7 \times 8 + \frac{1}{2} \times 12 \times 5 \times 7$$

$$= \frac{910}{3} / 303 \frac{1}{3} / 303.33 \text{ cm}^3$$

$$\begin{aligned} 6) \quad (a) \quad & \frac{150^\circ}{360^\circ} \times 2 \times \frac{22}{7} \times 11 + 11 \times 4 \\ & = 72.81 / 72 \frac{17}{21} \text{ cm} \end{aligned}$$

$$\begin{aligned} (b) \quad & \frac{150^\circ}{360^\circ} \times \frac{22}{7} \times 11^2 - \frac{150^\circ}{360^\circ} \times \frac{22}{7} \times \left(\frac{11}{2}\right)^2 + 2 \times \frac{60}{360} \times \frac{22}{7} \times \left(\frac{11}{2}\right)^2 \\ & = 150.53 / 150 \frac{89}{168} \end{aligned}$$

Answer / Jawapan:

7)

(a) (i) Palsy

(ii) Benar

(b) $p - q$ adalah nombor positif jika dan hanya jika $p > q$

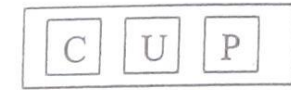
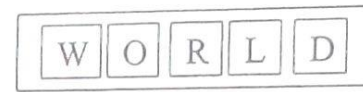
(c) Premise 2 / Premis 2 :

$y = x^n + 6$ bukan fungsi kuadratik.

(d) Lilitan bagi sebuah bulatan yang berjajari n cm

ialah $2\pi n$, $n = 1, 2, 3, 4, \dots$

- 8 Diagram 8 shows ~~four~~^{five} cards in bag A and three cards in bag B. A card is picked at random from bag A and then a card is picked at random from bag B.
Rajah 8 menunjukkan ~~empat~~^{lima} kad di dalam beg A dan tiga kad di dalam beg B. Satu kad dipilih secara rawak daripada beg A dan kemudian satu kad dipilih secara rawak dari beg B.



Bag A / Beg A

Bag B / Beg B

Diagram 8 / Rajah 8

- (a) List the sample space.
Senaraikan ruang sampel.
- (b) By listing down the possible outcomes of the event, find the probability that
Dengan menyenaraikan kesudahan yang mungkin bagi peristiwa itu, cari kebarangkalian.
- (i) both consonant cards are picked,
kedua-dua kad konsonan dipilih,
- (ii) a vowel card or a card labeled with P are picked.
sekeping kad vokal atau sekeping kad berlabel huruf P di pilih.

[6 marks]

[6 markah]

Answer / Jawapan:

(a) $S = \left\{ (WC), (WU), (WP), (OC), (OU), (OP), (RC), (RU), (RP), (LC), (LU), (LP), (DC), (DU), (DP) \right\}$

(b) (i) $(WC), (WP), (RC), (RP), (LC), (LP), (DC), (DP)$

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

(ii) $(WU), (OU), (OP), (RU), (DU), (LU), (WP), (RP), (LP), (DP)$

$$\frac{11}{15}$$

Diagram 9 shows three straight line PQ , PR and RT are drawn on a Cartesian plane. PQ is parallel to RT and PR is parallel to the y -axis.
 Rajah 9 menunjukkan tiga garis lurus PQ , PR dan RT dilukis pada suatu satah Cartes. PQ adalah selari dengan RT dan PR adalah selari dengan paksi- y .

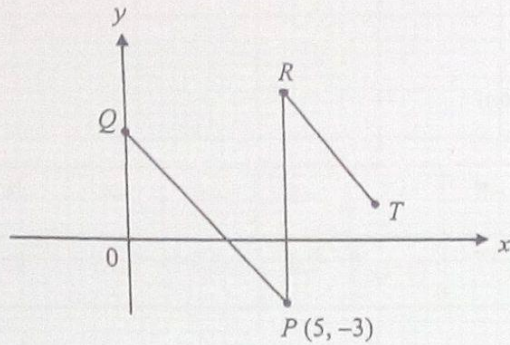


Diagram 9 / Rajah 9

It is given that $PQ = PR = 13$ units. Find
 Diberi bahawa $PQ = PR = 13$ unit. Cari

- The coordinates of point R .
Koordinat titik R .
- The gradient of PQ .
Kecerunan PQ .
- the equation of RT
persamaan garis lurus RT

[5 marks]
[5 markah]

Answer / Jawapan:

(a) $R (5, 10)$

(b) $\frac{9 - (-3)}{0 - 5}$
 $= -\frac{12}{5}$

(c) $10 = -\frac{12}{5}(5) + c$ atau setara

$y = -\frac{12}{5}x + 22$ / $5y = -12x + 110$

Answer / Jawapan:

(a)

3.42 p.m

(b)

$\frac{1}{2}(4 + 110)(1.2) = 108$

$4 = 70$

(c)

$108 + \frac{1}{2}(1.5 - 1.2)(110) = 120$

$= 4.5 \text{ km}$

Answer / Jawaban:

11) (a) $k = \frac{4}{9}$

$$h = -\frac{2}{3}$$

(b)
$$\begin{pmatrix} 3 & 1 \\ 2 & 4 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 304 \\ 536 \end{pmatrix}$$

$$\begin{aligned} x &= \text{yoga} \\ y &= \text{zumba} \end{aligned}$$

$$\begin{aligned} \begin{pmatrix} x \\ y \end{pmatrix} &= \frac{1}{3(4) - 2(1)} \begin{pmatrix} 4 & -1 \\ -2 & 3 \end{pmatrix} \begin{pmatrix} 304 \\ 536 \end{pmatrix} \\ &= \begin{pmatrix} 68 \\ 100 \end{pmatrix} \end{aligned}$$

$$\begin{aligned} \therefore \text{Yoga} &= 68 \\ \text{Zumba} &= 100 \end{aligned}$$

Answer / Jawaban:

12 (a)

x	-8	-7	-6	-5	-4	-3	-2	-1	-0.5
y	0.375	0.43	0.5	0.6	0.75	1	1.5	3	6

(b) Refer graph paper on page 22
Sila rujuk kertas graf di halaman 22

(c) (i) $y = 0.7 \pm 0.1$
(ii) $x = -0.9 \pm 0.1$

(d) $y = x + 5$

$$x = -0.7 \pm 0.1, \quad x = -4.3 \pm 0.1$$

13 (a) Transformation T is the translation $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$.

Penjelmaan T ialah translasi $\begin{pmatrix} 2 \\ -3 \end{pmatrix}$

Transformation R is a reflection in the line $x = 1$.

Penjelmaan R ialah pantulan pada garis $x = 1$.

- (i) Draw the image of quadrilateral KLMN in Diagram 13.1 under transformation T.

Lukiskan imej bagi sisiempat KLMN dalam Rajah 13.1 di bawah penjelmaan T.

- (ii) State the coordinate of the image of point M under combined transformation TR.

Nyatakan koordinat imej bagi titik M di bawah gabungan penjelmaan TR.

Answer/ Jawapan

(a) (i)

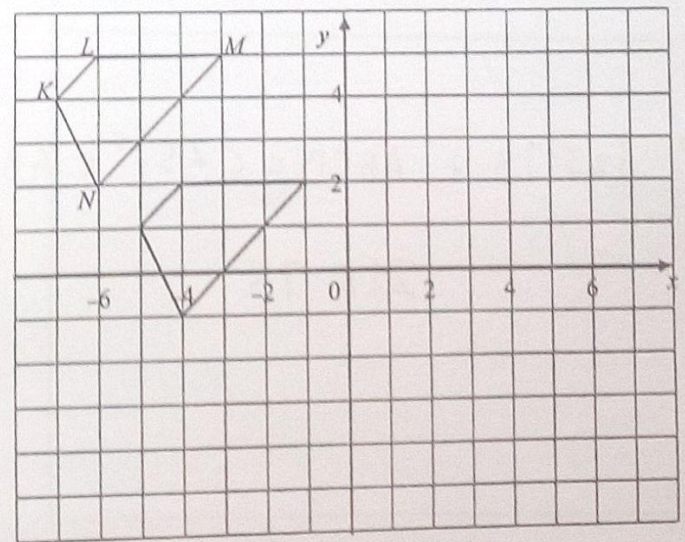


Diagram 13.1 / Rajah 13.1

(ii) $(5, 5) \rightarrow (7, 2)$

Answer / Jawapan:

B) (b) (i) (a) $W =$ Putaran 90° lawan arah jam pada pusat $(1,5)$
atau setara

(b) $V =$ Pembrebaran, faktor skala 2.5, pada
pusat $R(3,1)$ atau setara

(ii) $183.75 + ABCD = (2.5)^2 \times ABCD$

$$218.75$$

Answer / Jawapan:

14 (a)

Height Tinggi	Frequency Kekerapan	Cumulative Frequency Kekerapan longgokan	Upper Boundary Sempadan Atas
141-145	0	0	145.5
146-150	8	8	150.5
151-155	12	20	155.5
156-160	23	43	160.5
161-165	38	81	165.5
166-170	13	94	170.5
171-175	6	100	175.5

Table 14 / Jadual 14

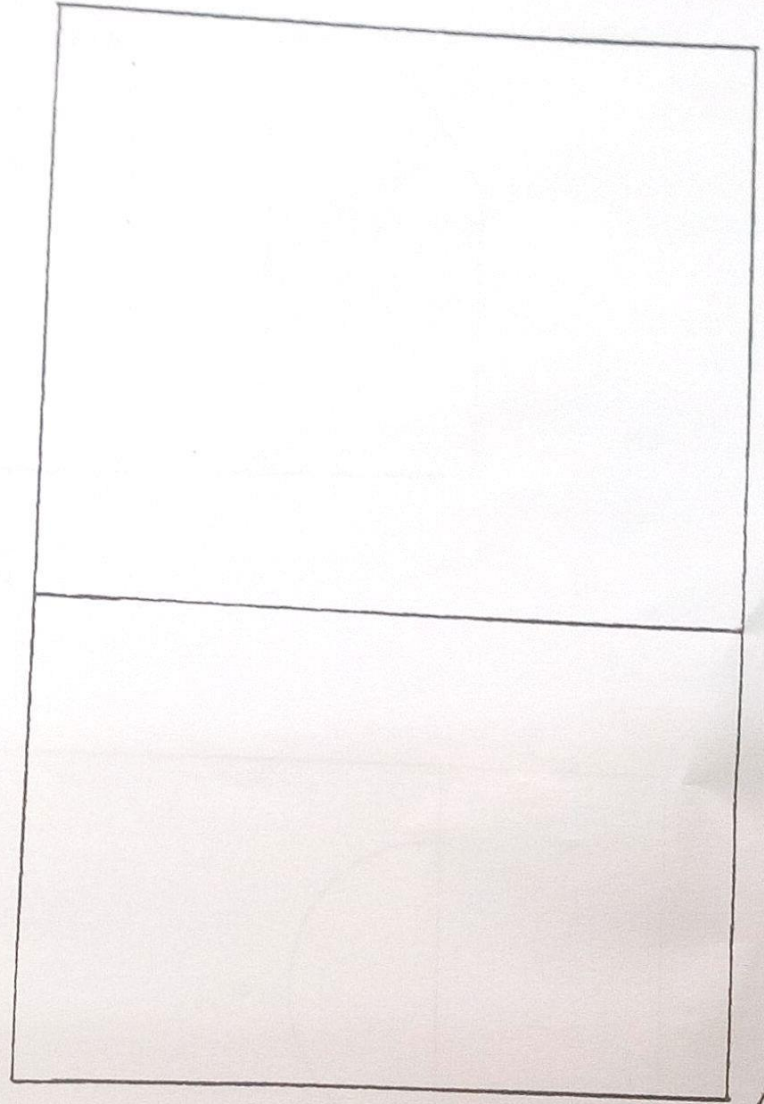
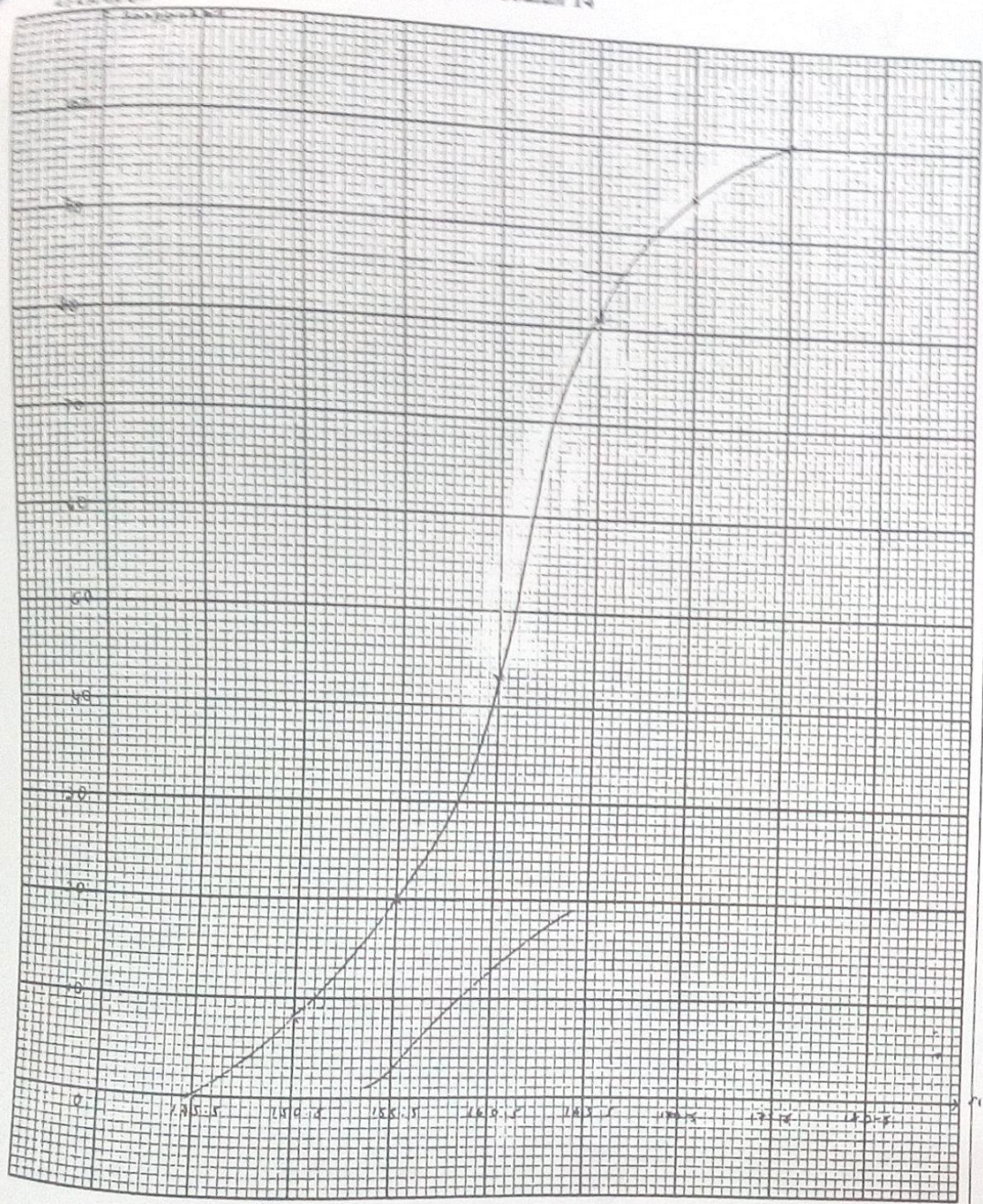
(b) $\text{Min} = \frac{8(148) + 12(153) + 23(158) + 38(163) + 13(168) + 6(173)}{100}$

$$= \frac{16070}{100}$$
$$= 160.7$$

(c) Refer graph on page 29
Rujuk graf di halaman 29

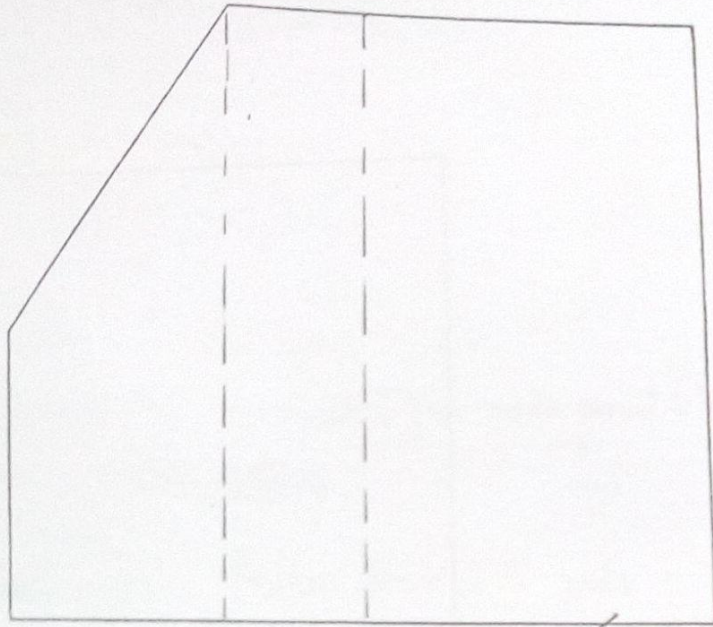
(d) 13%

orang untuk Soal 14

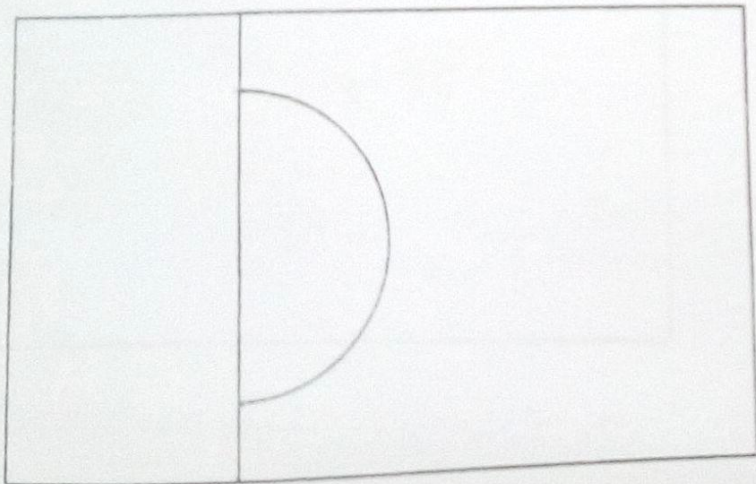


புள்ளிவிவரம்.

(b)(i)



(ii)



16 (a)(i)

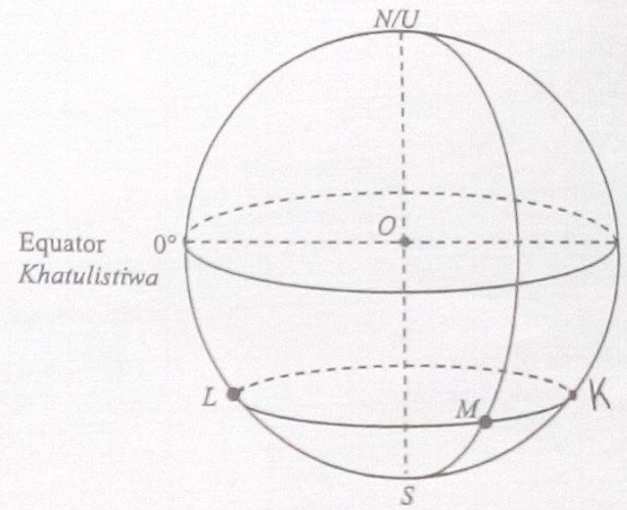


Diagram 16 / Rajah 16

(ii) $140^{\circ} T$

$$(b) \frac{4920}{60} = 82$$

Latitude = $82 - 32$
 $\therefore 50^{\circ} U$

(c)(i) $120 \times 60 \cos 32$
 6105.95 b.n

(ii) $\frac{6105.95}{13}$
 $= 469.69 \text{ knot}$