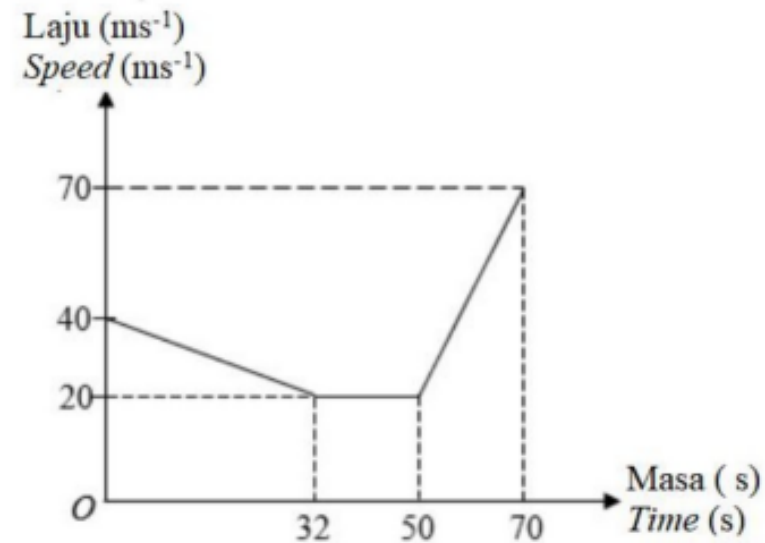


MELAKA

- 8 Rajah 1 menunjukkan graf laju-masa bagi pergerakan sebuah motosikal.
Diagram 1 shows speed-time graph for the movement of a motorcycle.

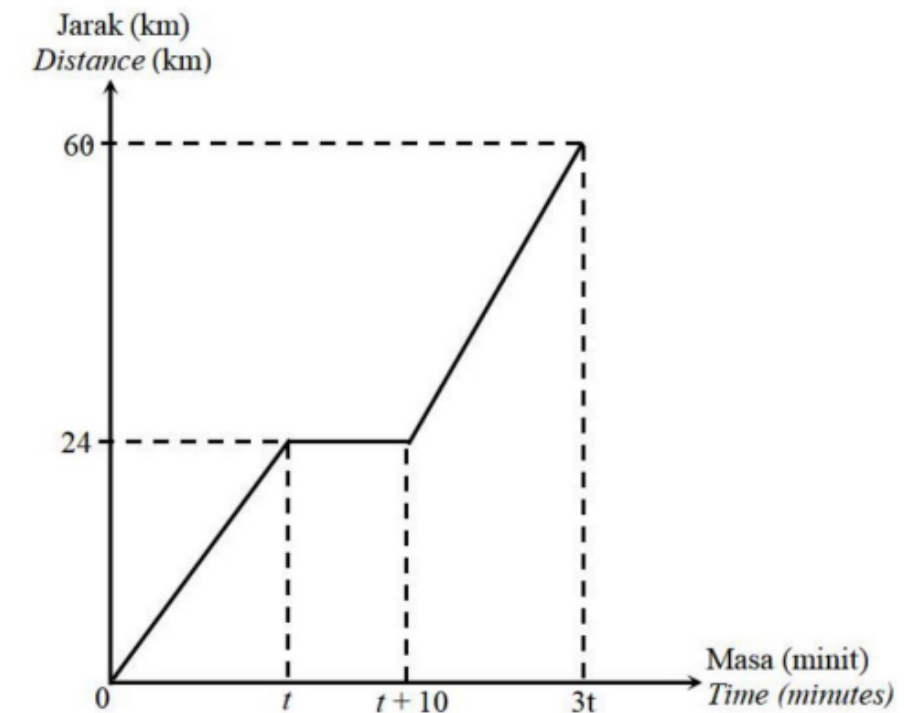


Rajah 1 / Diagram 1

- (a) Nyatakan tempoh masa, dalam s, apabila motosikal bergerak dengan laju seragam.
State the duration of time, in s, when the motorcycle travelled at a uniform speed. [1 markah/mark]
- (b) Bagi 32 saat yang pertama,
For the first 32 seconds,
- (i) hitung kadar perubahan laju, dalam ms^{-2} .
calculate the rate of change of speed, in ms^{-2} . [2 markah/marks]
- (ii) huraikan gerakan motosikal tersebut.
describe the motion of the motorcycle. [2 markah/marks]

GRAF GERAKAN**MELAKA**

- (d) Rajah 8 menunjukkan graf jarak-masa bagi perjalanan Encik Marzuki sejauh 60 km dalam masa $3t$ minit dengan memandu kereta dari tempat perangnya ke bandar S. Diberi kadar perubahan jarak terhadap masa sebelum dan selepas tempoh masa rehat adalah sama.
Diagram 8 shows the distance-time graph for Encik Marzuki traveling 60 km in $3t$ minutes by driving a car from his resort to town S. Given that the rate of change of distance with time before and after the rest period is the same.



Rajah 8 / Diagram 8

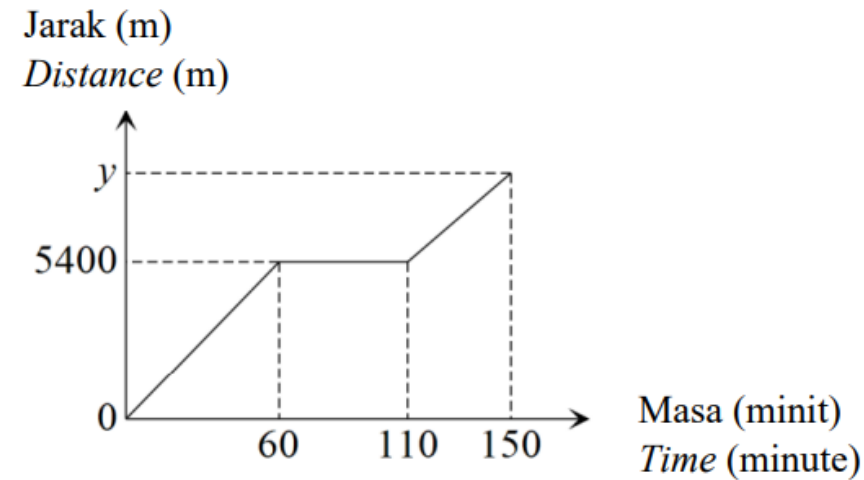
- (i) Hitung nilai t .
Calculate the value of t .
- (ii) Hitung laju purata keseluruhan perjalanan Encik Marzuki dalam kmh^{-1} .
Calculate the average speed of Encik Marzuki's whole journey in kmh^{-1} . [4 markah/ marks]

GRAF GERAKAN

PAHANG
N9

- 7 Rajah 4 menunjukkan graf jarak-masa bagi perjalanan Zahin dari sebuah taman rekreasi ke rumahnya dengan basikal.

Diagram 4 shows the distance-time graph of Zahin's journey from a recreation park to his house by bicycle.



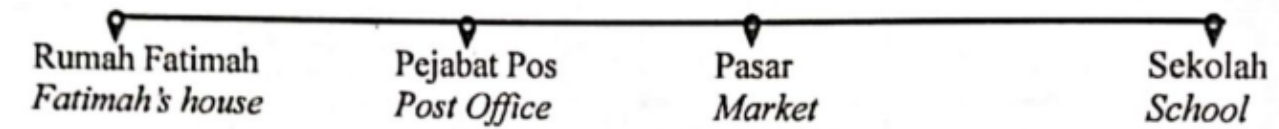
Rajah 4
Diagram 4

- (a) Hitung laju purata, dalam m/minit, perjalanan Zahin bagi tempoh 60 minit.
Calculate the average speed, in m/minute, of Zahin's journey in the first 60 minutes.
- (b) Diberi purata laju bagi keseluruhan perjalanan ialah 56 m/minit, cari nilai y .
Given that the average speed for the whole journey is 56 m/minute, find the value of y .

[4 markah]

- 3 Puan Fatimah seorang peniaga jualan langsung. Beliau selalu pergi ke pejabat pos untuk membuat kiriman barangan. Setiap pagi dia menghantar anaknya ke sekolah dan ke pasar untuk membeli barangan dapur. Rajah 1 menunjukkan kedudukan rumah Fatimah di antara pejabat pos, pasar dan sekolah. Jarak di antara rumahnya dengan tempat – tempat tersebut ditunjukkan dalam Jadual 1.

Puan Fatimah is a direct selling dealer. She always deals at the post office to send goods. Every morning she sends her son to school and go to the market to buy groceries. Diagram 1 shows the location of Fatimah's house between the post office, the market and the school. The distance between her house and the places are shown in Table 1.



Rajah 3
Diagram 3

| Tempat Place | Jarak dari rumah Fatimah (km) Distance from Fatimah's house (km) |
|----------------------------|---|
| Pejabat Pos Post Office | 10 |
| Pasar Market | 15 |
| Sekolah School | 26 |

Jadual 1
Table 1

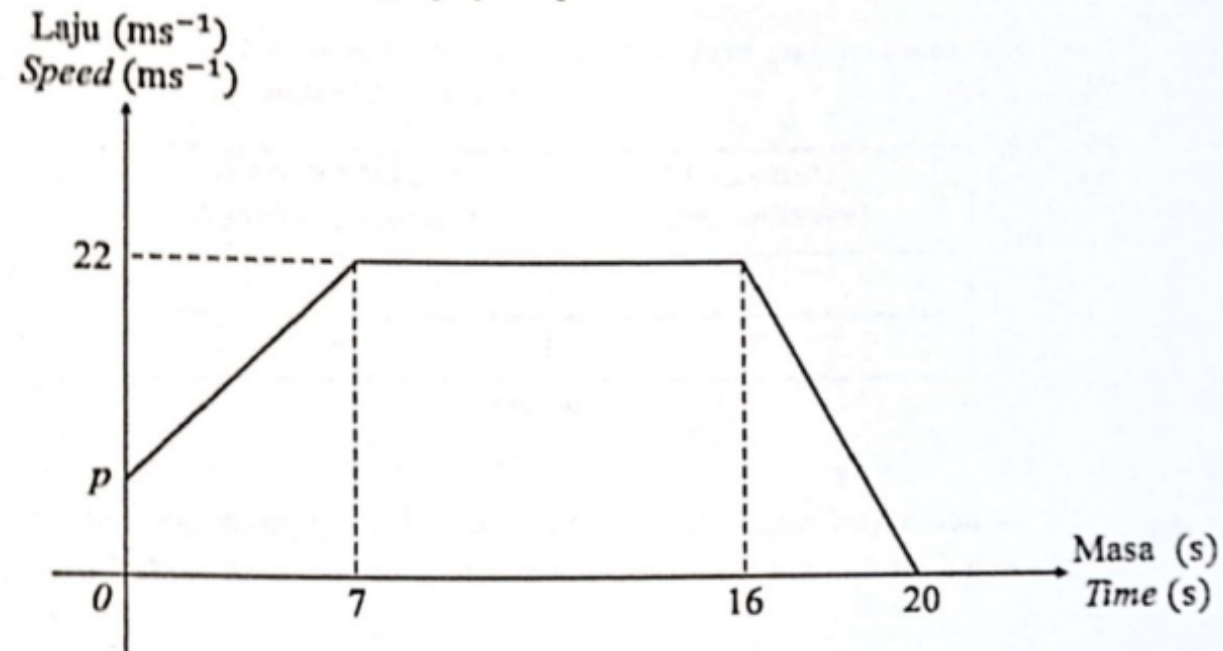
Hitung perbezaan jarak, dalam cm, di antara rumah Fatimah ke sekolah dan pasar ke sekolah. Nyatakan jawapan dalam bentuk piawai betul kepada tiga angka bererti.

Calculate the difference, in cm, between the distance of Fatimah's house to school and market to school. State the answer in standard form correct to three significant figures.

[3 markah /marks]

PAHANG

- 7 Rajah 6 menunjukkan graf laju-masa bagi suatu zarah dalam masa 20 saat.
Diagram 6 shows the speed-time graph for a particle in 20 seconds.



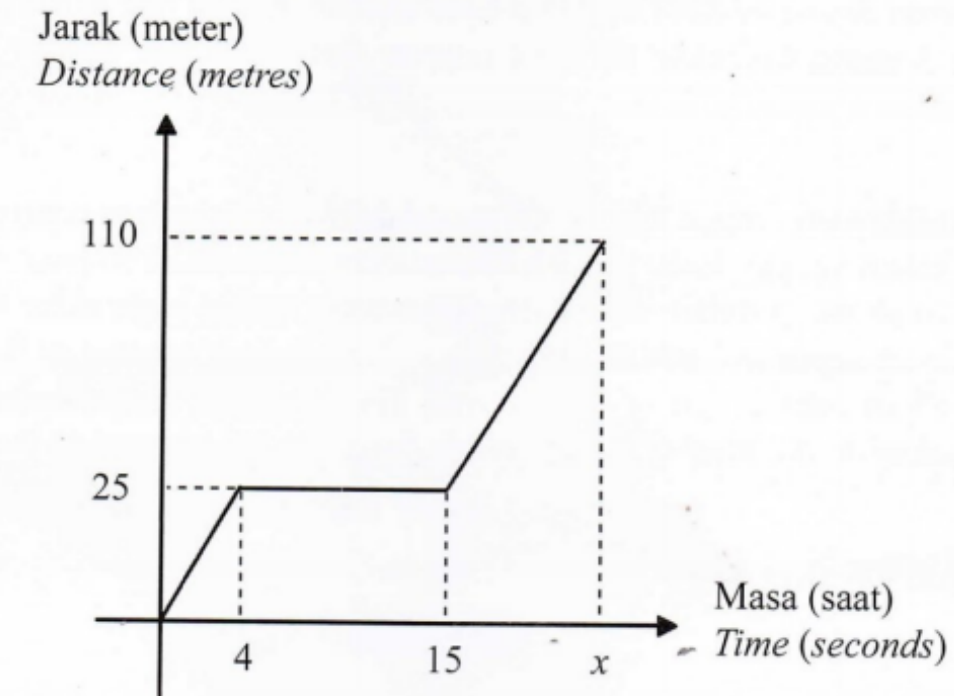
Rajah 6
Diagram 6

- (a) Nyatakan tempoh masa, dalam saat, ketika zarah itu bergerak dengan laju seragam.
State the duration, in second, when a particle is moving at a uniform speed.
- (b) Hitung kadar perubahan laju, dalam ms^{-2} , zarah itu untuk tempoh 4 saat terakhir.
Calculate the rate of change of speed, in ms^{-2} , of a particle for the last 4 seconds.
- (c) Hitung nilai p jika jumlah jarak yang dilalui bagi zarah itu untuk tempoh 7 saat pertama ialah 91 m.
Calculate the value of p if the total distance travelled of a particle for the first 7 seconds is 91 m.

[5 markah / marks]

GRAF GERAKAN**PERAK**

- 7 Rajah 3 menunjukkan sebuah graf jarak-masa yang menunjukkan gerakan bagi suatu zarah dalam tempoh masa x saat.
Diagram 3 shows a distance-time graph showing the motion of a particle in x seconds.



Rajah 3 / Diagram 3

Hitung / Calculate

- (a) tempoh masa, dalam saat, zarah itu berhenti,
the duration, in second, when the particle stops.
- (b) laju zarah tersebut pada 4 saat pertama.
the speed of the particle in the first 4 seconds.
- (c) nilai x jika laju purata zarah tersebut dalam x saat ialah 5 ms^{-1} .
the value of x , if the average speed of the particle in x seconds is 5 ms^{-1} .

[1 markah / mark]

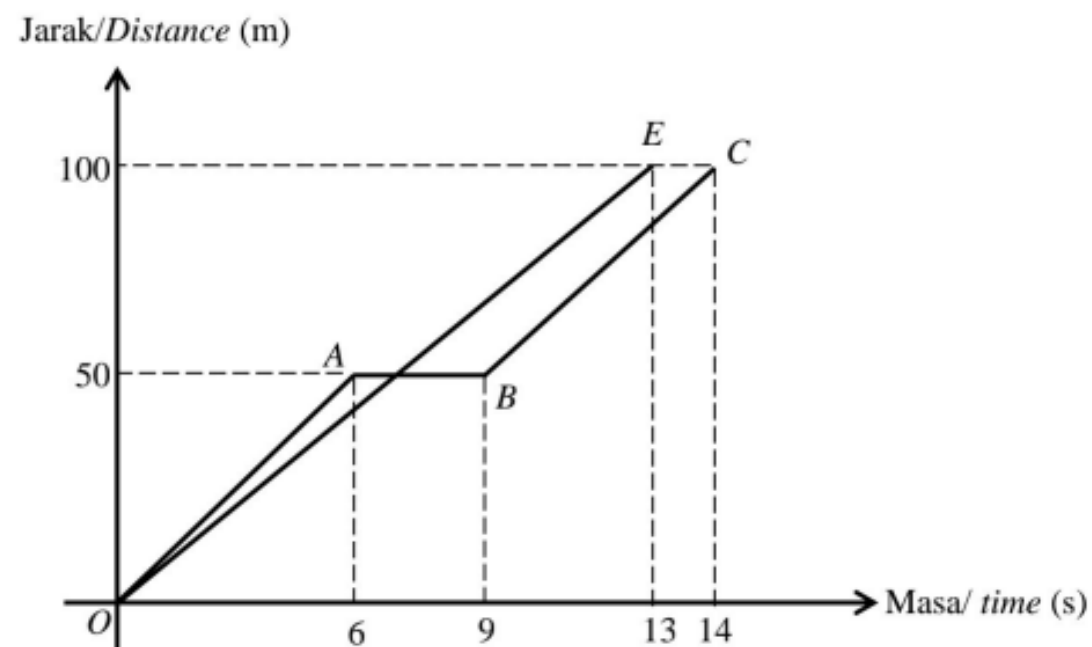
[2 markah / marks]

[2 markah / marks]

PERLIS

(d) Rajah 13 ialah graf jarak-masa yang menunjukkan masa yang diambil oleh dua orang peserta terbaik dalam acara 100 m semasa kejohanan olahraga di SMK Ayer Manis. Graf OE mewakili larian Nabil dan graf $OABC$ mewakili larian Basyar. AB ialah masa yang diambil oleh Basyar sebelum meneruskan lariannya kerana terjatuh.

Diagram 13 is a distance-time graph showing the time taken by the two best participants in the 100 m event during the athletics championship at SMK Ayer Manis. Graph OE represents Nabil's run and graph $OABC$ represents Basyar's run. AB is the time taken by Basyar before continuing his run due to falling.



Rajah 13
Diagram 13

- (i) Hitung kerugian masa, dalam saat, yang dialami oleh Basyar dalam pertandingan. [1 markah]
Calculate the time loss in seconds, experienced by Basyar in the competition. [1 mark]
- (ii) Adakah Basyar berpeluang untuk menjadi johan dalam acara 100 m jika dia tidak jatuh dan mengekalkan kelajuannya sepanjang larian? Berikan justifikasi anda. [3 markah]

GRAF GERAKAN

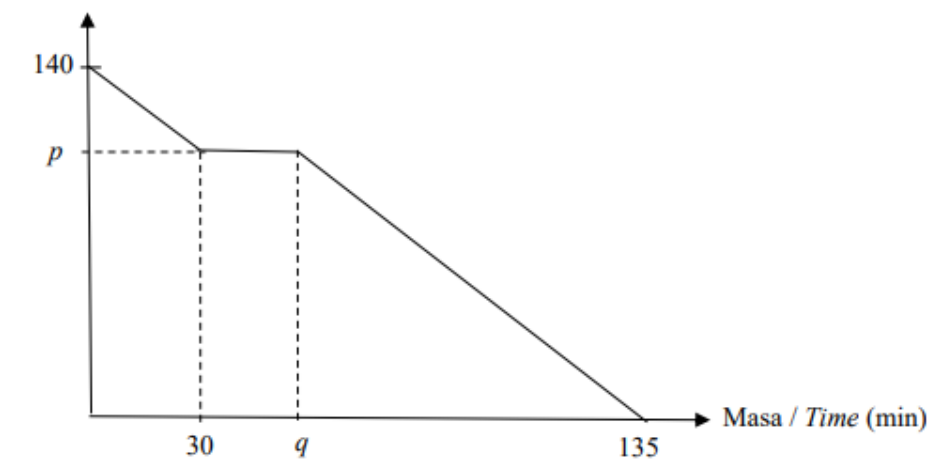
SMKA/SABK SET 1

(c) Jadual 4 menunjukkan catatan perjalanan ke hari keluarga Syarikat SHF dan Rajah 9 di bawah menunjukkan graf jarak-masa.

Table 4 shows the travel records to the SHF Company's family day and Diagram 9 below shows the distance-time graph.

| Masa Time | Catatan Perjalanan Travel Records |
|--------------|--|
| 9:00 a.m. | Perjalanan dimulakan Journey starts |
| 9:30 a.m. | Berehat di plaza Tol Ayer Keroh selepas perjalanan sejauh 20 km Rest at Ayer Keroh Toll after a 20 km journey |
| 9:45 a.m. | Meneruskan perjalanan Continue journey |
| 11:15 a.m. | Tiba di Batu Pahat Arrive at Batu Pahat |

Jarak / Distance (km)



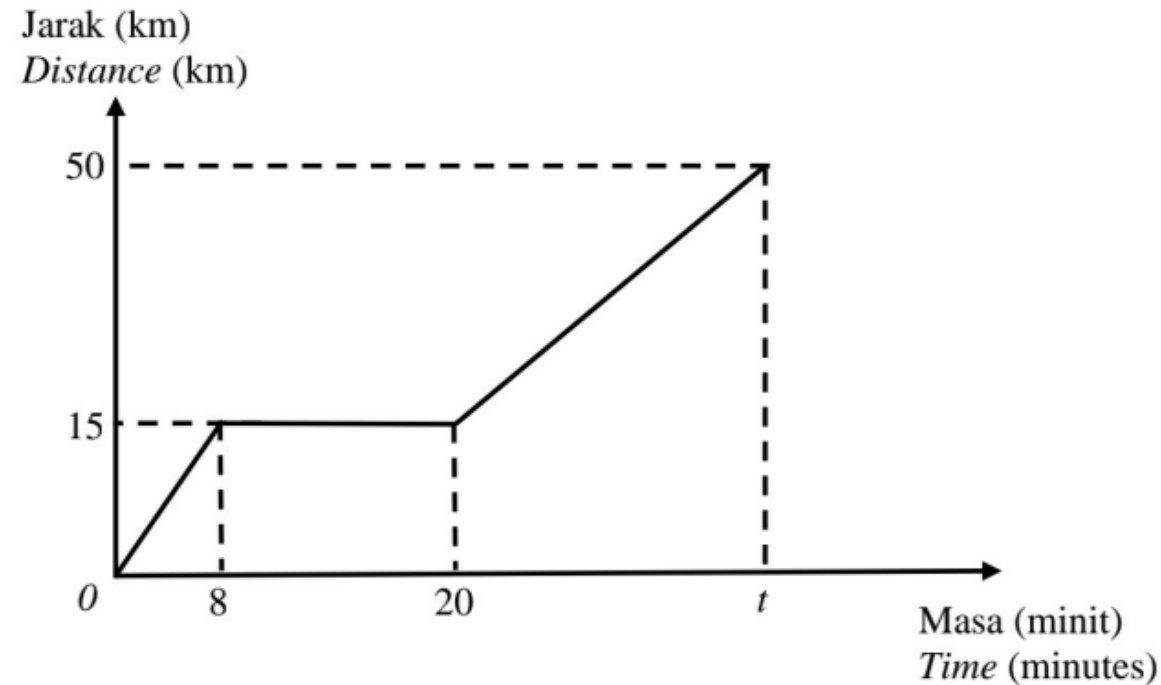
Rajah 9

- (i) Nyatakan nilai p dan nilai q .
State the values of p and q . [2 markah]
- (ii) Hitung laju purata, dalam km h^{-1} , bagi keseluruhan perjalanan
Calculate the average speed, in km h^{-1} , for the whole journey. [2 markah]

GRAF GERAKAN

TERENGGANU MPP3

- (b) Rajah 8 menunjukkan graf jarak-masa bagi perjalanan Encik Farqan untuk menghanta makanan sejuk bekunya kepada pelanggan dalam tempoh t minit.
Diagram 8 shows the distance-time graph for Encik Farqan's trip to deliver its frozen food to customers within t minutes.



Rajah 8
 Diagram 8

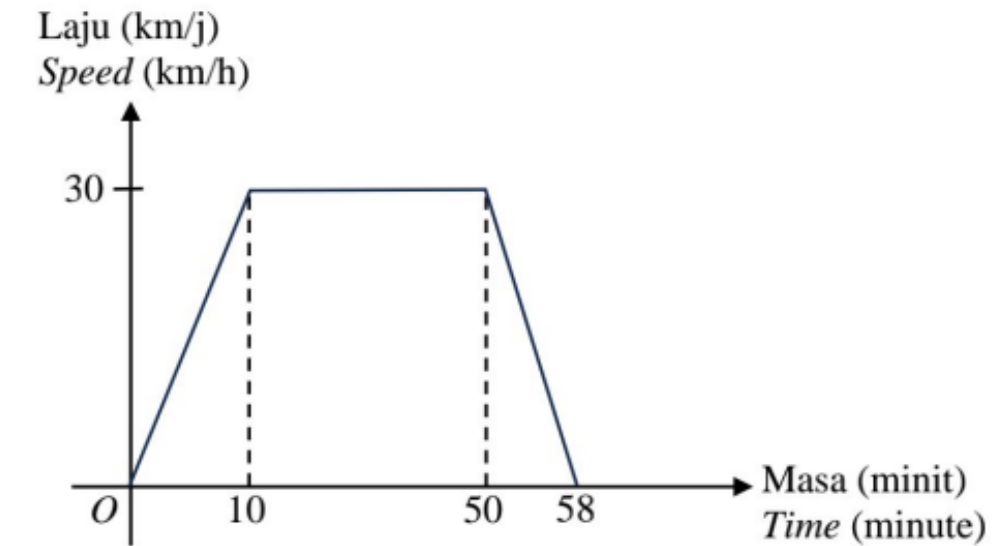
- (i) Nyatakan tempoh masa, dalam minit, Encik Farqan berhenti seketika.
State the length of time, in minutes, Encik Farqan stopped for a moment.
- (ii) Hitungkan nilai t , dalam minit, jika laju purata keseluruhan perjalanan Encik Farqan ialah 75 kmj^{-1} .
Calculate the value of t , in minutes, if the average speed of Encik Farqan's journey is 75 kmh^{-1} .

[4 markah]

TERENGGANU MPP3

- (c) Salwati ialah jiran Sarah, telah dimasukkan ke hospital. Rajah 9(c) menunjukkan graf laju-masa bagi perjalanan motosikal Sarah ke hospital untuk melawat Salwati.

Salwati is Sarah's neighbour, has been hospitalized. Diagram 9(c) shows the speed-time graph for Sarah's motorcycle movement to the hospital to visit Salwati.



Rajah 9(c)
 Diagram 9(c)

- (i) Nyatakan tempoh masa, dalam minit, perjalanan motosikal Sarah bergerak dengan laju seragam.
State the duration, in minutes, of Sarah's motorcycle moves with uniform speed.
- (ii) Cari jumlah jarak, dalam km, keseluruhan perjalanan tersebut.
Find the total distance, in km, of the whole journey.

[1 markah]

[1 mark]

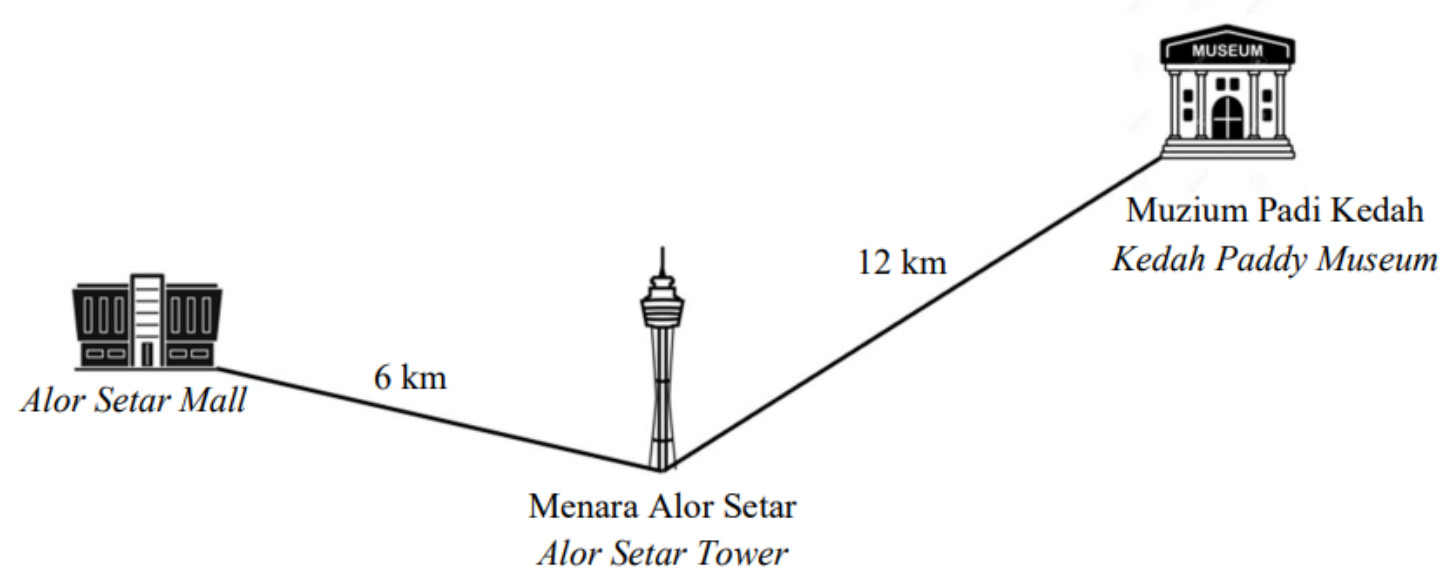
[3 markah]

[3 marks]

KEDAH**GRAF GERAKAN****KEDAH**

- 11 (a) Rajah 11.1 menunjukkan jarak di antara tiga lokasi di sekitar Alor Setar.

Diagram 11.1 shows the distance between the three locations around Alor Setar.



Rajah / Diagram 11.1

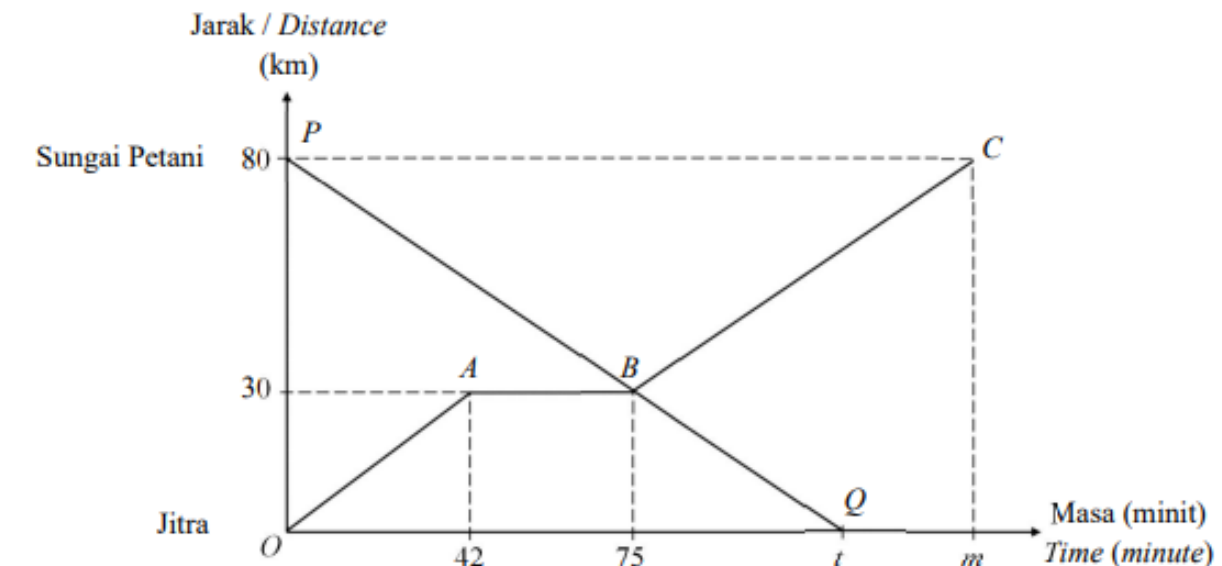
Pada pukul 8.15 pagi, Azani mula menunggang basikal secara individu dari Alor Setar Mall menuju ke Menara Alor Setar dan seterusnya ke Muzium Padi Kedah. Beliau tiba di Muzium Padi Kedah pada pukul 9.00 pagi. Hitung purata laju keseluruhan perjalanannya, dalam kmj^{-1} .

At 8.15 a.m. Azani started riding his bicycle individually from Alor Setar Mall towards Alor Setar Tower and then to the Kedah Paddy Museum. He arrived at the Kedah Paddy Museum at 9.00 a.m. Calculate the average speed of the entire journey, in kmh^{-1} .

[2 markah / marks]

- 11 (b) Rajah 11.2 menunjukkan graf jarak-masa bagi gerakan sebuah basikal dan sebuah kereta. Graf $OABC$ mewakili gerakan basikal dari Jitra ke Sungai Petani manakala graf garis lurus PBQ mewakili gerakan kereta dari Sungai Petani ke Jitra.

Diagram 11.2 shows the distance-time graph for the motion of a bicycle and a car. The graph $OABC$ represents the motion of a bicycle from Jitra to Sungai Petani while the straight line graph PBQ represents the motion of a car from Sungai Petani to Jitra.



Rajah / Diagram 11.2

- (i) Tentukan tempoh masa, dalam minit, basikal itu berada dalam keadaan pegun.
Determine the duration, in minute, when the bicycle is stationary.
- (ii) Dengan andaian basikal dan kereta tersebut bertolak pada waktu yang sama iaitu pada pukul 11.10 pagi dan melalui jalan yang sama, tentukan waktu ketika kedua-dua kenderaan tersebut berselisih.
By assuming that the bicycle and the car leave at the same time which is at 11.10 a.m. and travel through the same road, determine the time when the two vehicles meet.
- (iii) Diberi bahawa kadar perubahan jarak terhadap masa basikal tersebut dalam 50 km terakhir adalah 40 kmj^{-1} , hitung nilai m , dalam minit.
Given that the rate of change in distance with respect to time of the bicycle in the last 50 km is 40 kmh^{-1} , calculate the value of m , in minutes.
- (iv) Hitung nilai t .
Calculate the value of t .

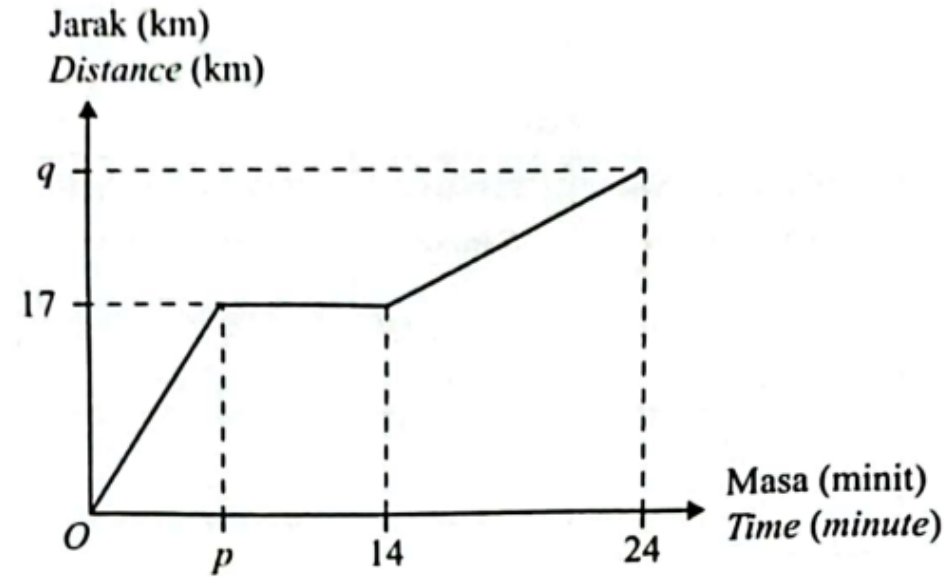
[7 markah / marks]

SELANGOR SET 2

GRAF GERAKAN

SBP

8 Rajah 3 menunjukkan graf jarak-masa sebuah teksi dalam masa 24 minit.
Diagram 3 shows distance-time graph of a taxi in 24 minutes.



Rajah 3
Diagram 3

- (a) Nyatakan nilai p , jika teksi itu berada dalam keadaan pegun selama 6 minit. [1 markah]
State the value of p , if the taxi is stationary for 6 minutes. [1 mark]
- (b) (i) Hitung nilai q , jika laju teksi bagi 10 minit terakhir ialah 72 km h^{-1} . [2 markah]
Calculate the value of q , if the speed of the taxi for the last 10 minutes is 72 km h^{-1} . [2 marks]
- (ii) Huraikan selengkapnya gerakan teksi untuk tempoh 10 minit terakhir. [1 markah]
Describe completely the motion of the taxi for the last 10 minutes. [1 mark]

16 (c) Setelah selesai karnival keusahawanan, Encik Johan perlu pulang ke restoran bagi menyediakan tempahan daripada pelanggan. Jadual 5.2 menunjukkan maklumat perjalanan bagi Encik Johan ke restoran menggunakan laluan terpendek.
At the end of the carnival of entrepreneurship, Encik Johan has to go back to the restaurant to prepare orders from the customers. Table 5.2 shows an information of Encik Johan's journey to the restaurant using shortest route.

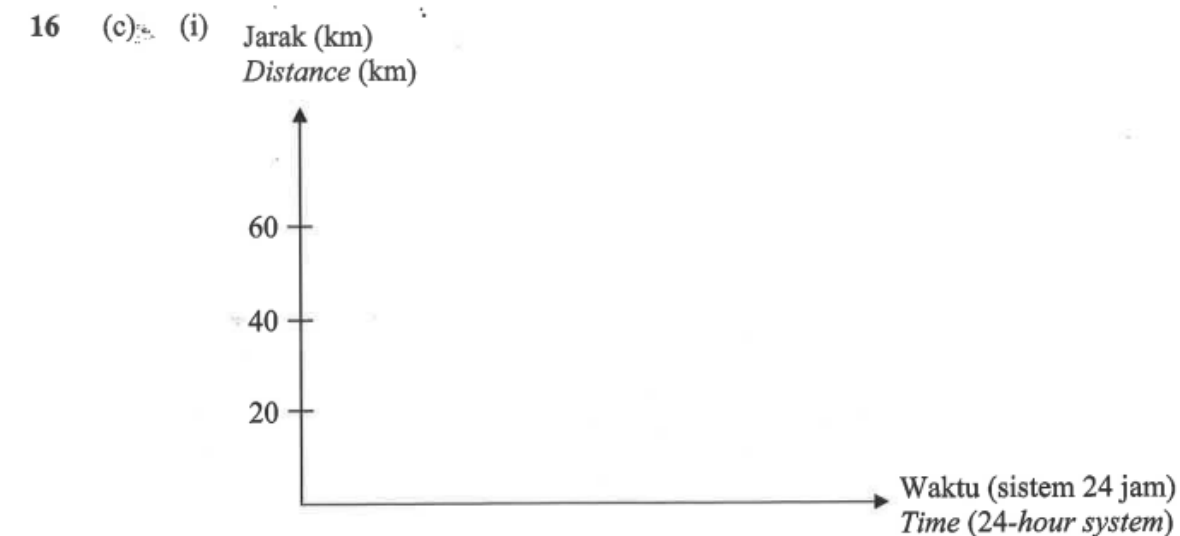
| Waktu Time | Huraian Description |
|---------------|--|
| 6:00 p.m. | Bertolak dari tempat karnival Departs from the carnival place |
| 6:30 p.m. | Berhenti di R&R Stop at R&R |
| 6:45 p.m. | Bertolak dari R&R Departs from R&R |
| 7:00 p.m. | Sampai di restoran Arrive at the restaurant |

Jadual 5.2
Table 5.2

Diberi jarak di antara tempat karnival dengan R&R ialah 40 km dan jarak di antara R&R dengan restoran ialah 20 km.
Given that the distance between the carnival place and R&R is 40 km and the distance between R&R and the restaurant is 20 km.

- (i) Mengandaikan van bergerak dengan laju seragam sepanjang perjalanan, lukis satu graf jarak-masa mewakili perjalanan tersebut.
Assuming the van travels at a uniform speed throughout the journey, draw a distance-time graph representing the journey. [2 markah]
[2 marks]
- (ii) Seterusnya, hitung laju van, dalam km min^{-1} , bagi 10 minit yang pertama.
Hence, calculate the speed of the van, in km min^{-1} , for the first 10 minutes. [2 markah]

Jawapan / Answer:



SKEMA JAWAPAN :

GRAF GERAKAN

MELAKA

| | | | |
|---------|---------|--|----------|
| 8 | (a) | 18 | 1 |
| | (b)(i) | $\frac{20 - 40}{32 - 0}$ <i>atau setara</i> | 1 |
| 8 | (b)(ii) | Nyahpecutan 0.625 ms^{-2} untuk tempoh 32 s <i>atau</i> nyahpecutan 0.625 pada jarak 960 m <i>atau setara</i> | 2 |
| (d)(i) | 20 | $\frac{24}{t} = \frac{60 - 24}{3t - (t + 10)}$ <i>atau setara</i> | 1 |
| | | | 1 |
| (d)(ii) | 60 | $\frac{60}{\left(\frac{3 \times 20}{60}\right)}$ <i>atau setara</i> | 1 |
| | | | 1 |
| | | | 4 |

N9

| | | | |
|---|-----|----------------------|----|
| 7 | (a) | $\frac{5400}{60}$ | K1 |
| | | 90 | N1 |
| | (b) | $56 = \frac{y}{150}$ | K1 |
| | | 8400 | N1 |

PAHANG

| | | |
|---|--|---|
| 3 | 26 km atau 2600000 cm atau 11 km atau 1100000 cm | 1 |
| | 26 - 11 atau 2600000 - 1100000 | 1 |
| | 1.50×10^6 | 1 |

PAHANG

| | | | |
|-----|-----|--|---|
| 7 | (a) | 9 | 1 |
| | (b) | $\frac{0 - 22}{20 - 16}$ <i>atau setara</i> | 1 |
| | | 5.5 | 1 |
| (c) | | $\frac{1}{2} \times (p + 22) \times 7 = 91$ <i>atau setara</i> | 1 |
| | | | 1 |
| | | 4 | |

PERAK

| | | | |
|-----|-----|------------------------|---|
| 7 | (a) | 11 | 1 |
| | (b) | $\frac{25 - 0}{4 - 0}$ | 1 |
| | | 6.25 | 1 |
| (c) | | $\frac{110}{5}$ | 1 |
| | | | 1 |
| | | 22 | |

PERLIS

| | | | |
|------|-----|------------------------|---|
| (c) | (i) | $S = \frac{100}{12.5}$ | 1 |
| | | | 1 |
| | | 8 | |
| (ii) | | $t = \frac{100}{8.46}$ | 1 |
| | | | 1 |
| | | 11.82 ... | |

PERLIS

SKEMA JAWAPAN :

GRAF GERAKAN

| | | | |
|-----|------|--|-------------|
| (d) | (i) | 3 | 1 |
| | (ii) | Ya Laju = $\frac{50}{6}$ atau 7.69 atau $\frac{100}{13}$ atau setara Masa sepatutnya = $\frac{6}{50} \times 100$ atau 12 | 1 1 1 |

SMKA/SABK SET 1

| | | | |
|-----|------|---|------------|
| (c) | (i) | $p = 120$ $q = 45$ | 1 1 |
| | (ii) | $\frac{140}{\left(\frac{135}{60}\right)}$ 62.22 atau $62\frac{11}{50}$ | 1 1 |

SELANGOR SET 2

| | | | |
|---|---------|---|------------|
| 8 | (a) | 8 | 1 |
| | (b)(i) | $\frac{q-17}{\left(\frac{24-14}{60}\right)} = 72$ atau setara / or equivalent 29 | 1 1 |
| | (b)(ii) | Teksi bergerak sejauh 12 km dengan kelajuan 72 km j^{-1} bagi tempoh 10 minit terakhir atau setara. <i>The taxi travels for 12 km with a speed of 72 km h^{-1} for the last 10 minutes or equivalent.</i> | 1 |

KEDAH

| | | | | |
|-------|--|---|--------------------------------------|----|
| 11. | (a) | $\frac{18}{\left(\frac{45}{60}\right)}$ atau $\frac{18}{45}$ | 1m | |
| | | 24 | 1m | |
| | (b) | (i) | 33 | 1m |
| | | (ii) | 12.25 p.m. atau 12.25 atau 1225 | 1m |
| (iii) | | $\frac{50}{\left(\frac{m-75}{60}\right)} = 40$ atau setara 150 ATAU $\frac{50}{40} \times 60$ atau $\frac{50}{40}$ 150 | 1m 1m (1m) (1m) | |
| (iv) | $\frac{80-30}{0-75}$ atau setara $\frac{80-30}{0-75} = \frac{80-0}{0-t}$ atau setara 120 | 1m 1m 1m | | |

TERENGGANU MPP3

SKEMA JAWAPAN :

GRAF GERAKAN

| | | |
|--------|---|----|
| (b)(i) | 12 minit | 1M |
| (ii) | $\frac{50}{t/60} = 75$ <u>atau</u> setara Nota: $\frac{50}{t} = 75$ <u>beri</u> 1M | 2M |
| | 40 minit | 1M |

TERENGGANU MPP3

| | | |
|---------|--|----|
| (c) (i) | 40 minit | 1M |
| (ii) | $\left(\frac{1}{2} \times \frac{10}{60} \times 30\right) + \left(\frac{40}{60} \times 30\right) + \left(\frac{1}{2} \times \frac{8}{60} \times 30\right)$ <u>atau</u> setara Nota: $\left(\frac{1}{2} \times \frac{10}{60} \times 30\right)$ <u>atau</u> $\left(\frac{40}{60} \times 30\right)$ <u>atau</u> $\left(\frac{1}{2} \times \frac{8}{60} \times 30\right)$ <u>atau</u> setara <u>beri</u> 1M | 2M |
| | 24.5 km | 1M |

KEDAH

| | | | | |
|-------|--|---|---|----|
| 11. | (a) | $\frac{18}{\left(\frac{45}{60}\right)}$ <u>atau</u> $\frac{18}{45}$ | 1m | |
| | | 24 | 1m | |
| | (b) | (i) | 33 | 1m |
| | | (ii) | 12.25 p.m. <u>atau</u> 12.25 <u>atau</u> 1225 | 1m |
| (iii) | | $\frac{50}{\left(\frac{m-75}{60}\right)} = 40$ <u>atau</u> setara 150 <u>ATAU</u> $\frac{50}{40} \times 60$ <u>atau</u> $\frac{50}{40}$ (1m) 150 (1m) | 1m 1m | |
| (iv) | $\frac{80-30}{0-75}$ <u>atau</u> setara $\frac{80-30}{0-75} = \frac{80-0}{0-t}$ <u>atau</u> setara 120 | 1m 1m 1m | | |

SBP

SKEMA JAWAPAN:

GRAF GERAKAN

(c)(i)

1800, 1830, 1845 dan 1900 dilabel pada paksi-x

Garis lurus dilukis dengan betul yang bermula dari (1800, 0) dan melalui (1830, 40), (1845, 40) dan berakhir di (1900, 60)

(ii) $\frac{40}{30}$

$\frac{4}{3}$ atau 1.33

P1

K1

N1

SBP

(d)(i) $\frac{v-15}{\left(\frac{40-20}{60}\right)} = 75$

40

(ii) $15 \times \frac{20}{60} + \frac{1}{2} \times (15+40) \times \left(\frac{40-20}{60}\right) + \frac{1}{2} \times 40 \times \frac{16}{60}$

atau setara

19.5 km

K1

N1

K2

N1

KEDAH

| | | | |
|---|------|---|------|
| 11. | (a) | $\frac{18}{\left(\frac{45}{60}\right)}$ <u>atau</u> $\frac{18}{45}$ | 1m |
| | | 24 | 1m |
| | (b) | (i) 33 | 1m |
| | | (ii) 12.25 p.m. <u>atau</u> 12.25 <u>atau</u> 1225 | 1m |
| (iii) $\frac{50}{\left(\frac{m-75}{60}\right)} = 40$ <u>atau</u> setara | | 1m | |
| | | 150 | 1m |
| | | <u>ATAU</u> | |
| | | $\frac{50}{40} \times 60$ <u>atau</u> $\frac{50}{40}$ | (1m) |
| | | 150 | (1m) |
| | (iv) | $\frac{80-30}{0-75}$ <u>atau</u> setara | 1m |
| | | $\frac{80-30}{0-75} = \frac{80-0}{0-t}$ <u>atau</u> setara | 1m |
| | | 120 | 1m |