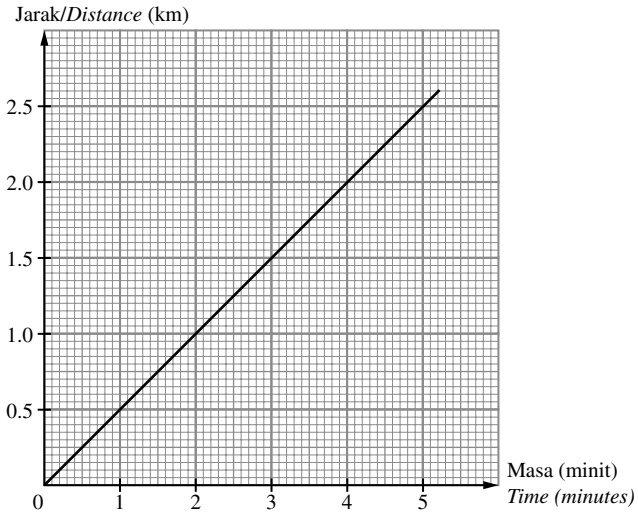
Penyelesaian Lengkap

Praktis 7

Praktis Formatif

7.1 Graf Jarak-Masa
Distance-Time Graphs

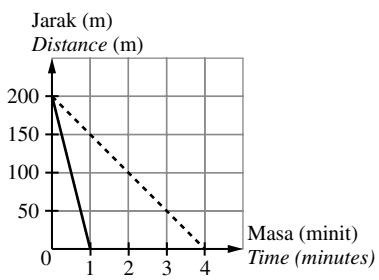
1



2 (a) Lori bergerak sejauh 150 km pulang ke kilang dalam tempoh masa 4 jam dengan laju 37.5 km j^{-1}.
The lorry moves 150 km *return back to the factory in a period of* 4 *hours with a speed of* 37.5 km h^{-1}.

(b) Ya, Addy akan kena saman kerana dalam 2 jam yang pertama dia memandu dengan laju 75 km j^{-1} > 60 km j^{-1}.
Yes, Addy will be summoned because in the first two hours, he drove with a speed of 75 km h^{-1} > 60 km h^{-1}.

3 (a)

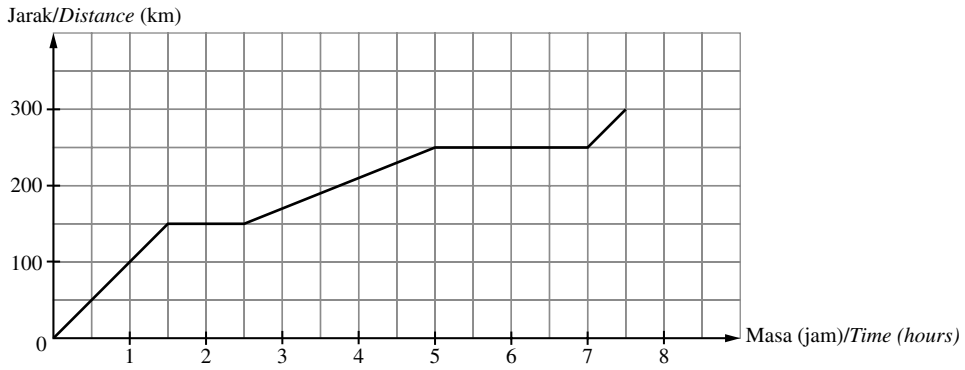


(b) (i) $\frac{200\text{ m}}{60\text{ s}}$
$= 3.33\text{ m s}^{-1}$

(ii) $\frac{200\text{ m}}{240\text{ s}}$
$= 0.833\text{ m s}^{-1}$

(iii) $3.33\text{ m s}^{-1} - 0.833\text{ m s}^{-1}$
$= 2.497\text{ m s}^{-1}$

4 (a)



(b) Tempoh masa kereta berada dalam keadaan pegun ialah dari jam1030 – jam1130 dan dari jam1400 – jam1600 iaitu 3 jam.
The period of time when the car is in stationary state are from 1030 *hour* – 1130 *hour and* 1400 *hour* – 1600 *hour, that is* 3 *hours*.

(c) (ii) $\frac{300 \text{ km}}{7.5 \text{ j/h}} = 40 \text{ km j}^{-1}/\text{km h}^{-1}$

5 (a) Katakan masa yang diambil dari kedai runcit ke rumah ialah x.

$\frac{10 \text{ km}}{x \text{ j}} = 40 \text{ km j}^{-1}$

$x = 0.25$ jam

$= 15$ minit

Masa yang diambil dari kedai runcit ke rumah Syam adalah sama dengan masa yang diambil dari rumah Syam ke kedai runcit, maka jumlah masa yang diambil dari B ke D ialah 30 minit. Jadi, t ialah jam 0910 dalam sistem 24 jam.

$t = 0910$

Let the time taken from grocery shop to Syam's house be x.

$\frac{10 \text{ km}}{x \text{ h}} = 40 \text{ km h}^{-1}$

$x = 0.25$ *hour*

$= 15$ *minutes*

The time taken from grocery shop to Syam's house is the same as the time taken from Syam's house to grocery shop,therefore the time taken from B to D is 30 *minutes. So, t is* 0910 *hour in the* 24*-hour system.*

$t = 0910$

(b) Motosikal bergerak dengan laju 40 km j^{-1} sejauh 10 km dalam masa 15 minit.
The motorcycle moves with a speed of 40 km h^{-1} *for a distance of* 10 km *in* 15 *minutes.*

6 (a) (i) $\frac{18 \text{ km}}{0.5 \text{ j/h}} = 36 \text{ km j}^{-1}/\text{km h}^{-1}$

(ii) Kecerunan garis *BC*/*Gradient of line BC*

$= \frac{(24 - 12)}{0.5 - \frac{t}{60}}$

$= \frac{12}{\frac{30 - t}{60}} = \frac{720}{30 - t}$

Kecerunan garis *AB*/*Gradient of line AB*

$= \frac{6}{\frac{t}{60}}$

$= \frac{360}{t}$

Diberi kecerunan garis *BC* – kecerunan garis *AB*

Given Gradient of line BC-Gradient of line AB = 10

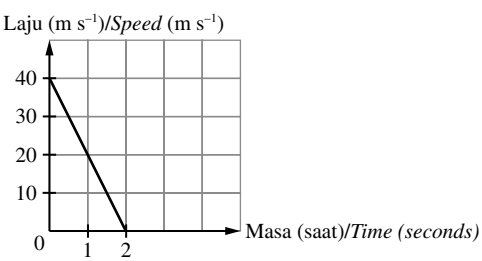
$$\frac{720}{30 - t} - \frac{360}{t} = 10$$
$$720t - 360(30 - t) = 10t(30 - t)$$
$$720t - 10\,800 + 360t = 300t - 10t^2$$
$$780t - 10\,800 + 10t^2 = 0$$
$$78t - 1\,080 + t^2 = 0$$
$$(t - 12)(t + 90) = 0$$

$t = 12$ minit/*minutes*

(b) Kereta bergerak sejauh 18 km dalam masa 30 minit dengan purata laju 36 km j^{-1}.
The car moves for a distance of 18 km *in* 30 *minutes with an average speed of* 36 km h^{-1}.

7.2 Graf Laju-Masa *Speed-Time Graphs*

1



2 (a) Jarak/*Distance*

$= \frac{1}{2}(60 + 100)(25) + \frac{1}{2}(100)(80 - 25)$

$= 4\,750$ m

(b) Jarak/*Distance* $= \frac{1}{2}(20)\left(\frac{5}{60}\right) + \frac{1}{2}(20 + 30)\left(\frac{5}{60}\right)$

$= 2.917$ km

3 (a) $\frac{1}{2}(60 + 100)(4) = 320$ km

(b) $100(1) = 100$ km

(c) $\frac{1}{2}(100)(3) = 150$ km

(d) $\frac{(320 + 100 + 150)\text{ km}}{8\text{ j/h}}$
$= 71.25\text{ km j}^{-1}\text{/km h}^{-1}$

4 (a) Dalam 1 jam yang terakhir, bas bergerak dengan nyahpecutan 30 km j^{-2} sejauh 15 km.
In the last hour, the bus decelerates 30 km h^{-2} *for* 15 km.

(b) $\frac{1}{2}(20)(1) + \frac{1}{2}(20 + 30)(2)$
$= 60$ km

(c) $\frac{(30 - 20)\text{ km j}^{-1}\text{/km h}^{-1}}{(3 - 1)\text{ j/h}}$
$= 5\text{ km j}^{-2}\text{/km h}^{-2}$

5 (a) $\frac{30\text{ m s}^{-1}}{40\text{ s}} = 0.75\text{ m s}^{-2}$

(b) $\frac{30\text{ m s}^{-1}}{(100 - 150)\text{ s}} = -0.6\text{ m s}^{-2}$

(c) $\frac{1}{2}(30)(40) + 60(30) + \frac{1}{2}(30)(50)$
$= 3\,150$ m

6 (a) (i) $\frac{1}{2}(y + 60)\left(\frac{20}{60}\right) + 60\left(\frac{40}{60}\right) + \frac{1}{2}(60 + 90)\left(\frac{40}{60}\right)$
$= 125$

$10(y + 60) + 2\,400 + 20(150) = 7\,500$
$10y + 600 + 2\,400 + 3\,000 = 7\,500$
$10y = 1\,500$
$y = 150\text{ km j}^{-1}\text{/km h}^{-1}$

(ii) $\frac{1}{2}(150 + 60)\left(\frac{20}{60}\right) + 60\left(\frac{40}{60}\right)$
$= 75\text{ km j}^{-1}\text{/km h}^{-1}$

(b) Objek tersebut bergerak dengan laju seragam 60 km j^{-1} sejauh 40 km selama 40 minit. Seterusnya, objek tersebut bergerak dengan pecutan 45 km j^{-2} sejauh 50 km selama 40 minit.
The object moves with a uniform speed of 60 km h^{-1} *for* 40 km *in* 40 *minutes. Then, the object moves with an acceleration of* 45 km h^{-2} *for* 50 km *in* 40 *minutes.*

7 (a) $\frac{1}{2}(2.5)\left(\frac{t}{4}\right) + \frac{1}{2}(2.5 + 3.5)\left(\frac{3t}{4}\right) - \frac{1}{2}(4)(t) = 5.625$
$1.25t + 9t - 8t = 22.5$
$2.25t = 22.5$
$t = 10$ s

(b) Jumlah jarak yang dilalui/*Total distance travelled*
$= \frac{1}{2}(2.5)(2.5) + \frac{1}{2}(2.5 + 3.5)(7.5)$
$= 25.625$ m

Laju purata/*Average speed* $= \frac{25.625\text{ m}}{10\text{ s}}$
$= 2.5625\text{ m s}^{-1}$

(c) Raju bergerak dengan laju purata 2.56525 m s^{-1} dalam masa 10 saat sejauh 25.625 meter.
Raju moves with an average speed of 2.5625 m s^{-1} *in* 10 *seconds for* 25.625 metres.

(d) Raju

Praktis Sumatif

Kertas 1

1 A **2** C **3** D **4** D **5** D
6 B

Kertas 2

Bahagian/*Section* A

1 (a) (i) Raj

(ii) Raj mempunyai peluang paling tinggi untuk menang kerana dia telah melalui jarak 1 050 m pada saat yang ke-19 manakala Roy dan Wan masing-masing hanya melalui jarak 950 m dan 675 m.
Raj has the highest chance to win because he already travelled a distance of 1 050 m *up to* 19 *seconds whereas Roy and Wan only travelled for* 950 m and 675 m *respectively.*

(b) $(23 - 8) - (23 - 19)$
$= 11$ s

Bahagian/*Section* B

1 (a) $(0 - 6)$ s

(b) $\frac{1}{2}(24 + u)(6) = 84$
$72 + 3u = 84$
$u = 4$

(c) $\frac{1}{2}(28)(6) + 24(8) + \frac{1}{2}(24)(t - 14) = 324$
$84 + 192 + 12t - 168 = 324$
$12t = 216$
$t = 18$

(d) $\frac{24\text{ m s}^{-1}}{(18 - 14)\text{ s}} = 6\text{ m s}^{-2}$

2 (a) (i) $\frac{(g - 10)}{(0 - 720)} = -\frac{1}{60}$
$60g - 600 = 720$
$60g = 1\,320$
$g = 22$ m

(ii) $\frac{22 - 10}{60h} = \frac{1}{90}$
$60h = 1\,080$
$h = 18$ min

(b) Persamaan garis *DE*/*Equation of line DE*:

$y = -\frac{1}{60}x + 22$

Persamaan garis *AB*/*Equation of line AB*:

$y = \frac{1}{90}x + 10$

Apabila kedua-dua zarah bertemu/*When both particles meet*

$$-\frac{1}{60}x + 22 = \frac{1}{90}x + 10$$

$$\frac{x}{90} + \frac{x}{60} = 12$$

$$2x + 3x = 2\,160$$

$$5x = 2\,160$$

$$x = 432$$

$$t = \frac{432}{60}$$

$$= 7.2 \text{ minit/}\textit{minutes}$$

3 (a) $\dfrac{v}{\frac{10}{60}} = \dfrac{100}{\frac{25}{60}}$

$$6v = 240$$

$$v = 40 \text{ km j}^{-1}\text{/km h}^{-1}$$

(b) Kereta bergerak dengan laju seragam 40 km j^{-1} sejauh 10 km selama 15 minit.
The car moves with a uniform speed 40 km h^{-1} *for* 10 km *in* 15 *minutes.*

(c) $\dfrac{100}{\frac{25}{60}} = 240 \text{ km j}^{-2}\text{/km h}^{-2}$

4 (a) (i) $0.5(4 + h)(3) + 0.5(2 + h)(1) = 10$

$$6 + 1.5h + 1 + 0.5h = 10$$

$$h = 1.5 \text{ km j}^{-1}\text{/km h}^{-1}$$

(ii) $\dfrac{10 \text{ km}}{4 \text{ j/h}} = 2.5 \text{ km j}^{-1}\text{/km h}^{-1}$

(b) 1100