Jawapan

Praktis 7

Praktis Formatif

7.1 Graf Jarak-Masa
Distance-Time Graphs

1

Jarak/*Distance* (km)

Masa (minit)
Time (minutes)

2

Jarak/*Distance* (m)

Masa (saat)
Time (seconds)
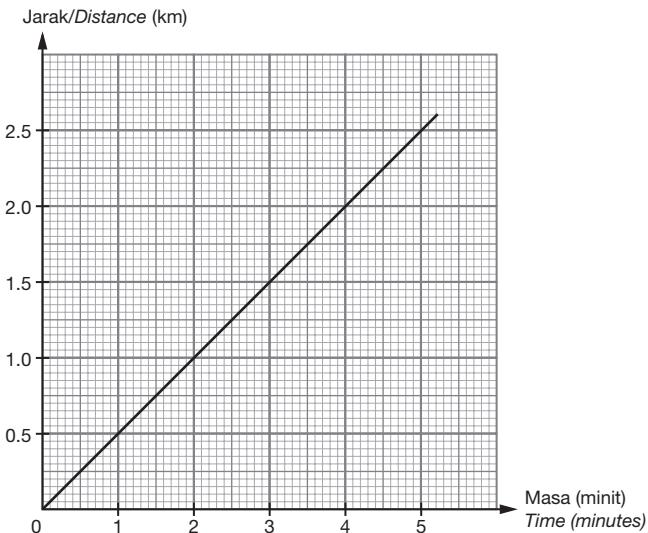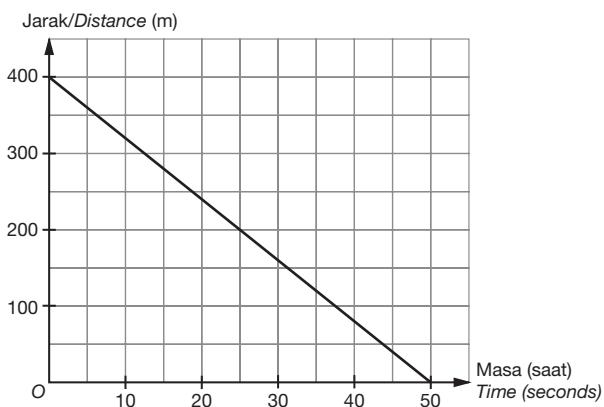
3 (a) Lori bergerak sejauh 150 km pulang ke kilang dalam tempoh masa 4 jam dengan laju 37.5 km j⁻¹.
The lorry moves 150 km *return back to the factory in a period of* 4 *hours with a speed of* 37.5 km h⁻¹.

(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.

4 (a)

Jarak (m)
Distance (m)

Masa (minit)
Time (minutes)
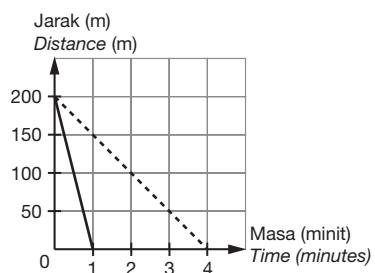
(b) (i) $\dfrac{200 \text{ m}}{60 \text{ s}}$

$= 3.33 \text{ m s}^{-1}$

(ii) $\dfrac{200 \text{ m}}{240 \text{ s}}$

$= 0.833 \text{ m s}^{-1}$

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

$= 2.497 \text{ m s}^{-1}$

5 (a)

Jarak/*Distance* (km)

Masa (jam)/*Time (hours)*
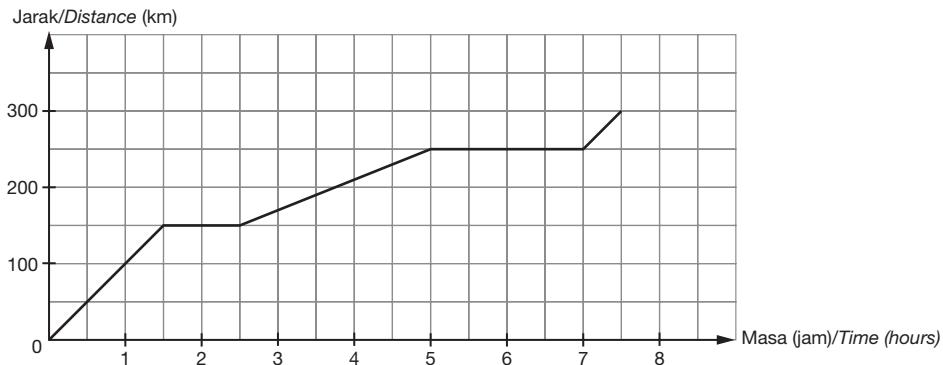
(b) Tempoh masa kereta berada dalam keadaan pegun ialah dari jam1030 – jam1130 dan dari jam1400 – jam1600.

The period of time when the car is in stationary state are from 1030 *hour –* 1130 *hour and* 1400 *hour –* 1600 *hour.*

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

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

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

$x = 0.25$ jam

$\quad = 15$ 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.

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

$x = 0.25$ *hour*

$\quad = 15$ *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.*

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

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

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

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

Kecerunan garis AB/*Gradient of line AB*

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

$= \dfrac{360}{t}$

Diberi kecerunan garis BC – kecerunan garis AB

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

$\dfrac{720}{30 - t} - \dfrac{360}{t} = 10$

$720t - 360(30 - t) = 10t(30 - t)$

$720t - 10\,800 + 360t = 300t - 10t^2$

$780t - 10\,800 + 10t^2 = 0$

$78t - 1\,080 + t^2 = 0$

$(t - 12)(t + 90) = 0$

$t = 12$ minit/*minutes*

(b) Encik Jerry memandu sejauh 6 km dalam masa 12 minit yang pertama dengan laju 30 km j^{-1} dari pejabat ke destinasi B. Seterusnya, dia memandu ke destinasi C sejauh 12 km dalam masa 18 minit dengan laju 40 km j^{-1}.

Mr Jerry drives a distance of 6 *km in* 12 *minutes with a speed of* 30 *km h^{-1} from office to destination B. Then, he drives to destination C for a distance of* 12 *km in* 18 *minutes with a speed of* 40 *km h^{-1}.*

7.2 Graf Laju-Masa
    Speed-Time Graphs

1

Laju (m s^{-1})/*Speed* (m s^{-1})

Masa (saat)/*Time (seconds)*

2

Laju/*Speed* (m s^{-1})

Masa (saat)
Time (seconds)

3 (a) (i)

Laju (km j^{-1})/*Speed* (km h^{-1})

Masa (jam)/*Time (hours)*
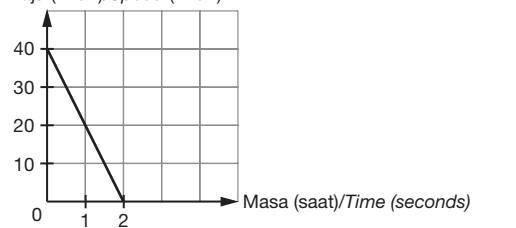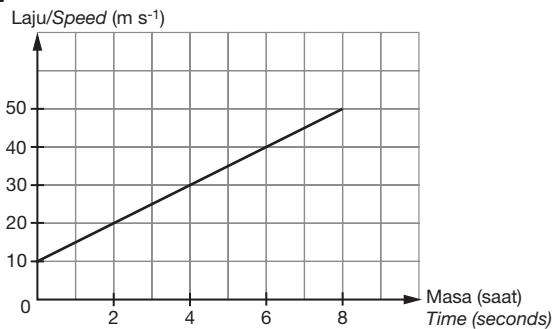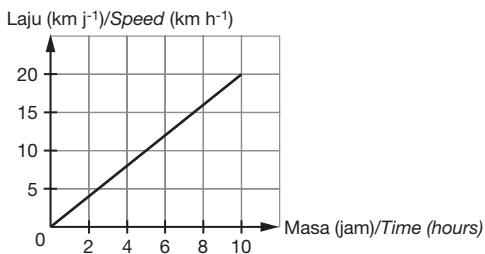
(ii) Jarak/*Distance* $= \dfrac{1}{2}(10)(20)$

$= 100$ km

(b) (i)

Laju (km j^{-1})/*Speed* (km h^{-1})

Masa (jam)/*Time (hours)*
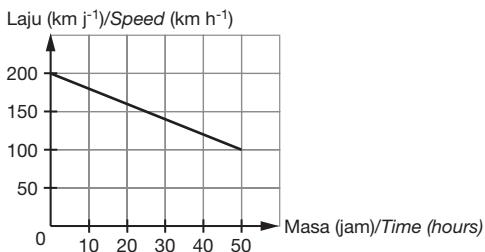
(c) (ii) Jarak/*Distance* $= \dfrac{1}{2}(50)(300)$

$= 7\,500$ km

4 (a) Jarak/*Distance*

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

$= 4\,750$ m

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

$= 2.917$ km

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

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

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

(d) $\dfrac{(320 + 100 + 150)\text{ km}}{8\text{ j/h}}$

$= 71.25$ km j^{-1}/km h^{-1}

6 (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) $\dfrac{1}{2}(20)(1) + \dfrac{1}{2}(20 + 30)(2)$

$= 60$ km

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

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

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

(c) $\dfrac{1}{2}(30)(40) + 60(30) + \dfrac{1}{2}(30)(50)$

$= 3\,150$ m

8 (a) (i) $\dfrac{1}{2}(y + 60)\left(\dfrac{20}{60}\right) + 60\left(\dfrac{40}{60}\right) + \dfrac{1}{2}(60 + 90)\left(\dfrac{40}{60}\right)$

$= 125$

$10(y + 60) + 2\,400 + 20(150) = 7\,500$

$10y + 600 + 2\,400 + 3\,000 = 7\,500$

$10y = 1\,500$

$y = 150$ km j^{-1}/km h^{-1}

(ii) $\dfrac{1}{2}(150 + 60)\left(\dfrac{20}{60}\right) + 60\left(\dfrac{40}{60}\right) = 75$ km j^{-1}/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.*

9 (a) $\dfrac{1}{2}(2.5)\left(\dfrac{t}{4}\right) + \dfrac{1}{2}(2.5 + 3.5)\left(\dfrac{3t}{4}\right) - \dfrac{1}{2}(4)(t) = 5.625$

$1.25t + 9t - 8t = 22.5$

$2.25t = 22.5$

$t = 10$ s

(b) Jumlah jarak yang dilalui/*Total distance travelled*

$= \dfrac{1}{2}(2.5)(2.5) + \dfrac{1}{2}(2.5 + 3.5)(7.5)$

$= 25.625$ m

Laju purata/*Average speed* $= \dfrac{25.625\text{ m}}{10\text{ s}}$

$= 2.5625$ m s^{-1}

(c) Raju bergerak dengan pecutan 1 m s^{-2} dalam masa 2.5 saat yang pertama sejauh 3.125 meter. Seterusnya, dia bergerak dengan pecutan 0.1333 m s^{-2} dalam masa 7.5 saat yang seterusnya sejauh 22.5 meter.
Raju moves with acceleration 1 m s^{-2} *in the first* 2.5 *seconds for* 3.125 *metres. Then, he moves with an acceleration* 0.1333 m s^{-2} *in the next* 7.5 *seconds for* 22.5 *metres.*

(d) Raju

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*
   $-\frac{1}{60}x + 22 = \frac{1}{90}x + 10$
   $\frac{x}{90} + \frac{x}{60} = 12$
   $2x + 3x = 2\,160$
   $5x = 2\,160$
   $x = 432$
   $t = \frac{432}{60}$
   $= 7.2$ minit/*minutes*

3 (a) $\frac{v}{\frac{10}{60}} = \frac{100}{\frac{25}{60}}$
   $6v = 240$
   $v = 40$ km j^{-1}/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) $\frac{100}{\frac{25}{60}} = 240$ km j^{-2}/km h^{-2}

4 (a) (i) $0.5(4 + h)(3) + 0.5(2 + h)(1) = 10$
   $6 + 1.5h + 1 + 0.5h = 10$
   $h = 1.5$ km j^{-1}/km h^{-1}
   (ii) $\frac{10 \text{ km}}{4 \text{ j/h}} = 2.5$ km j^{-1}/km h^{-1}
(b) 1100