Jawapan

Bab 10

1. (a)
- Garis *PQ* lebih curam berbanding dengan garis *QR*.
  Line PQ is steeper than line QR.
- Garis *PQ* condong ke kanan.
  Line PQ inclines to the right.
- Garis *QR* condong ke kiri.
  Line QR inclines to the left.

(b)
- Garis *ST* lebih curam berbanding dengan garis *TU*.
  Line ST is steeper than line TU.
- Garis *ST* condong ke kanan.
  Line ST inclines to the right.
- Garis *TU* condong ke kiri.
  Line TU inclines to the left.

2. (a) Jarak mencancang = 5 cm
Vertical distance
Jarak mengufuk = 3 cm
Horizontal distance
Kecerunan $AB = \frac{5}{3}$
Gradient of AB

(b) Jarak mencancang = 4 unit / *units*
Vertical distance
Jarak mengufuk = 3 unit / *units*
Horizontal distance
Kecerunan $AB = \frac{4}{3}$
Gradient of AB

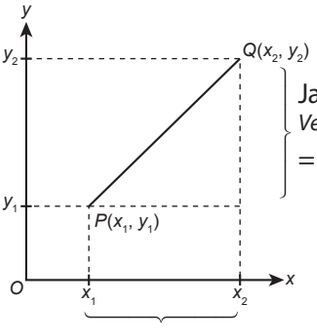
(c) Jarak mencancang = 30 m
Vertical distance
Jarak mengufuk = 50 m
Horizontal distance
Kecerunan $AB = \frac{30}{50} = \frac{3}{5}$
Gradient of AB

(d) Jarak mencancang = 12 m
Vertical distance
Jarak mengufuk = 5 m
Horizontal distance
Kecerunan $AB = \frac{12}{5}$
Gradient of AB

(e) Jarak mencancang = 20 m
Vertical distance
Jarak mengufuk = 15 m
Horizontal distance
Kecerunan $AB = \frac{20}{15} = \frac{4}{3}$
Gradient of AB

(f) Jarak mencancang = 10 m
Vertical distance
Jarak mengufuk = 2 m
Horizontal distance
Kecerunan $AB = \frac{10}{2} = 5$
Gradient of AB

3. (a)



Jarak mencancang
Vertical distance
$= \boxed{y_2} - \boxed{y_1}$

Jarak mengufuk / *Horizontal distance*
$= \boxed{x_2} - \boxed{x_1}$

Kecerunan *PQ* / *Gradient of PQ*

$$m_{PQ} = \frac{\text{Jarak mencancang / } \textit{Vertical distance}}{\text{Jarak mengufuk / } \textit{Horizontal distance}}$$

$$= \boxed{\frac{y_2 - y_1}{x_2 - x_1}}$$

(b) Kecerunan *PQ* / *Gradient of PQ*

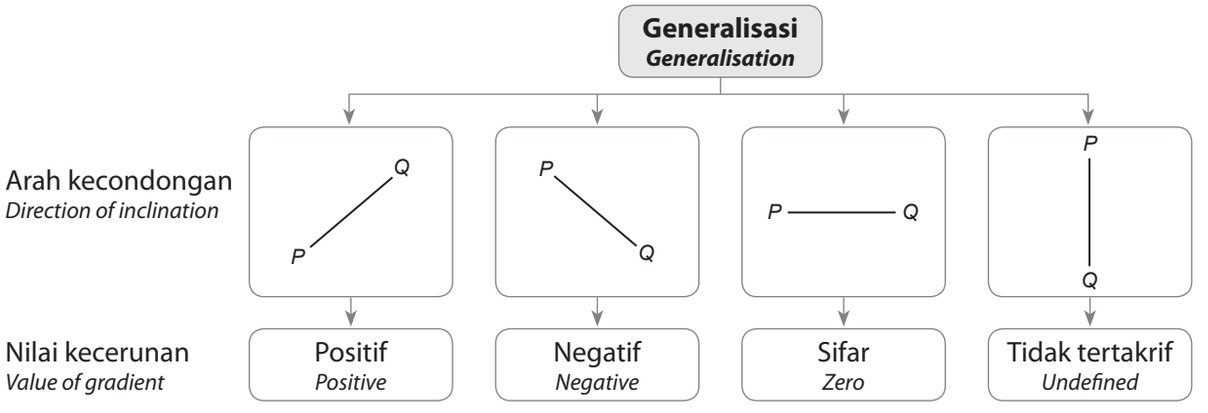
$$m_{PQ} = \frac{\text{Jarak mencancang / } \textit{Vertical distance}}{\text{Jarak mengufuk / } \textit{Horizontal distance}}$$

$$= \frac{\boxed{y} - \boxed{0}}{\boxed{0} - \boxed{x}}$$

$$= \boxed{-\frac{\text{pintasan-}y \text{ / } \textit{y-intercept}}{\text{pintasan-}x \text{ / } \textit{x-intercept}}}$$

4.

Garis lurus ***Straight line***	**Kecerunan** ***Gradient***	**Arah kecondongan** ***Direction of inclination***	**Nilai kecerunan** ***Value of gradient***
AB	$= \frac{3-1}{-3-(-4)} = 2$	Ke kanan *To the right*	Positif *Positive*
CD	$= \frac{3-2}{1-(-1)} = \frac{1}{2}$	Ke kanan *To the right*	Positif *Positive*
EF	$= \frac{1-0}{-2-(-1)} = -1$	Ke kiri *To the left*	Negatif *Negative*
GH	$= \frac{-1-(-2)}{-3-(-1)} = -\frac{1}{2}$	Ke kiri *To the left*	Negatif *Negative*
IJ	$= \frac{3-3}{3-2} = 0$	Garis mengufuk *Horizontal line*	Sifar *Zero*
KL	$= \frac{2-2}{4-2} = 0$	Garis mengufuk *Horizontal line*	Sifar *Zero*
MN	$= \frac{-1-(-2)}{1-1} = \infty$	Garis mencancang *Vertical line*	Tidak tertakrif *Undefined*
OP	$= \frac{0-(-3)}{2-2} = \infty$	Garis mencancang *Vertical line*	Tidak tertakrif *Undefined*



5. (a) $m_{TU} = \frac{-1-(-2)}{-2-4}$

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

(b) $m_{RS} = \frac{0-2}{4-5}$

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

$= 2$

(c) $m_{CD} = \frac{0-6}{2-(-1)}$

$= -\frac{6}{3}$

$= -2$

(d) $m_{AB} = \frac{9-(-12)}{-4-3}$

$= \frac{21}{-7}$

$= -3$

(e) $m_{TU} = -\frac{8}{6}$

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

(f) $m_{GH} = -\frac{(-18)}{(-12)}$

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

(g) $m_{EF} = -\dfrac{(-3)}{(-6)}$

$= -\dfrac{1}{2}$

(h) $m_{KL} = -\dfrac{(-18)}{24}$

$= \dfrac{3}{4}$

6. (a) $m_{DE} = 3$

$\dfrac{y_2 - y_1}{x_2 - x_1} = 3$

$\dfrac{6-2}{t-(-1)} = 3$

$3(t+1) = 4$

$3t + 3 = 4$

$3t = 1$

$t = \dfrac{1}{3}$

(b) $-\dfrac{\text{Pintasan-}y \text{ / } \textit{y-intercept}}{-5} = \dfrac{7}{5}$

Pintasan-y / *y-intercept* $= \dfrac{7}{5} \times 5$

$= 7$

Maka / *Hence*, $J(0, 7)$.

(c) $\dfrac{y}{6} = \dfrac{4}{3}$ ← Kecerunan/ *Gradient* = Jarak mencancang *Vertical distance* / Jarak mengufuk *Horizontal distance*

$3y = 24$

$y = \dfrac{24}{3}$

$= 8$

Guna teorem Pythagoras,
Use Pythagoras theorem,

$x^2 = y^2 + 6^2$

$x = \sqrt{8^2 + 6^2}$

$= \sqrt{100}$

$= 10$

(d) (i) Katakan jarak mengufuk papan itu ialah x. / *Let the horizontal distance of the board be x.*

Kecerunan, m / *Gradient, m* $= \dfrac{\text{Jarak mencancang } \textit{Vertical distance}}{\text{Jarak mengufuk } \textit{Horizontal distance}}$

$1.5 = \dfrac{2.4}{x}$

$x = \dfrac{2.4}{1.5}$

$= 1.6$ m

(ii) Pekerja itu boleh memendekkan jarak mengufuk papan itu pada lantai supaya kecerunan papan tersebut lebih tinggi. Apabila nilai kecerunan lebih tinggi, papan itu menjadi lebih curam. Maka, kotak-kotak itu dapat diluncurkan dengan lebih laju.
The workers can shorten the horizontal distance of the board on the floor so that the gradient of the board is higher. When the value of the gradient is higher, the board will become steeper. Thus, the boxes can be slided faster.

Praktis Masteri 10

BAHAGIAN A

1. A Kecerunan / *Gradient*

$= \dfrac{4}{2}$

$= 2$

B Kecerunan / *Gradient*

$= \dfrac{2}{10}$

$= \dfrac{1}{5}$

C Kecerunan / *Gradient*

$= \dfrac{9}{8}$

D Kecerunan / *Gradient*

$= \dfrac{8}{1}$

$= 8$

Jawapan / *Answer*: **D**

2. Jarak mencancang / *Vertical distance*
$= 30$ cm $\times 3$
$= 90$ cm

Kecerunan / *Gradient*

$= \dfrac{(90 \div 100)\text{ m}}{1.8}$

$= 0.5$

Jawapan / *Answer*: **A**

3. Jawapan / *Answer*: **C**

4. Kecerunan / *Gradient* $= \dfrac{y_2 - y_1}{x_2 - x_1}$

$4 = \dfrac{4-m}{4-2}$

$4 = \dfrac{4-m}{2}$

$4 - m = 8$

$m = -4$

Jawapan / *Answer*: **B**

BAHAGIAN B

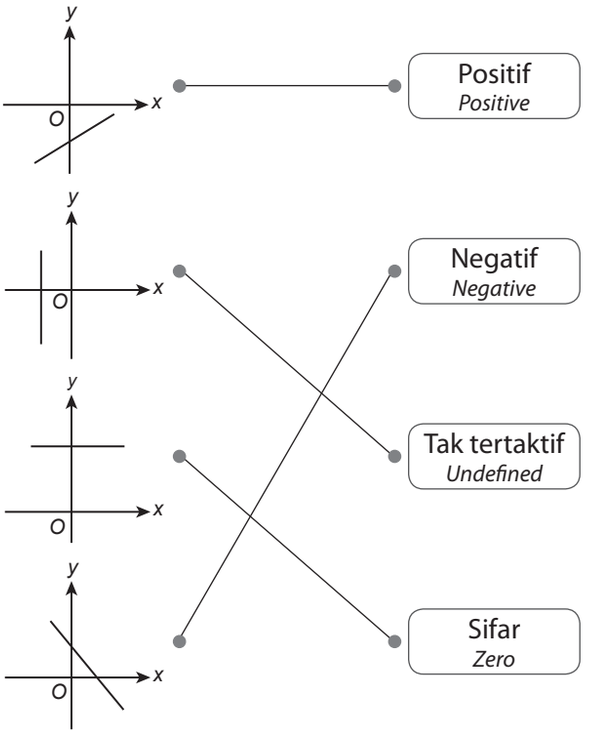
5. Jarak mencancang garis *PQ* ialah / *The vertical distance of line PQ is* 6 cm

Jarak mengufuk garis *PQ* ialah / *The horizontal distance of line PQ is* 8 cm

Kecerunan garis *PQ* / *Gradient of PQ* $= \frac{6\text{ cm}}{8\text{ cm}}$

$= 0.75$

6.



BAHAGIAN C

7. (a) (i) Kecerunan / *Gradient*

$= \frac{3-(-1)}{3-(-2)} = \frac{4}{5}$

(ii) Kecerunan / *Gradient*

$= \frac{3-0}{4-0} = \frac{3}{4}$

(b) (i) Kecerunan / *Gradient*

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

(ii) $-1 = \frac{4-0}{p-5}$ Atau / *Or* $-1 = \frac{4-5}{p-0}$

$-p + 5 = 4$ $\quad p = \frac{-1}{-1}$

$p = 1$ $\quad = 1$

(c) Jarak mengufuk landasan

Horizontal distance of the ramp

$0.5 = \frac{60\text{ cm}}{x}$

$x = \frac{60\text{ cm}}{0.5}$

$= 120\text{ cm}$

Panjang landasan / *Length of the ramp*

$= \sqrt{60^2 + 120^2}$

$= 134.16\text{ cm}$

Fokus KBAT

1. Jarak di antara hujung jongkang-jongket dengan tiang / *Distance between the end of the see-saw and the pole*

$= 4.5 \div 2$

$= 2.25\text{ m}$

Katakan tinggi tiang = y

Let the height of the pole

Kecerunan/ *Gradient*, $\frac{y}{2.25} = \frac{4}{9}$

$9y = 9$

$y = 1$

Maka, tinggi tiang di tengah jongkang-jongket itu ialah 1 m.

Thus, the height of the pole at the centre of the see-saw is 1 m.

2. (a) Kecerunan / *Gradient* $= \frac{1}{3}$

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

$6x = 3x + 1$

$6x - 3x = 1$

$3x = 1$

$x = \frac{1}{3}$

$= 0.33$

(b) $RS = 2(0.33)$

$= 0.66\text{ m}$

$TS = 3(0.33) + 1$

$= 1.99\text{ m}$

Panjang papan condong

Length of the sloping board

$= \sqrt{(0.66)^2 + (1.99)^2}$

$= 2.1\text{ m}$