

BAB 7 KOORDINAT

7.1 JARAK DALAM SISTEM KOORDINAT CARTES

1. Isikan petak kosong bagi mencari jarak di antara dua titik pada satah Cartes yang diberi. (TP1)

Fill in the blanks to find the distance between two points on Cartesian plane.

Jarak PQ = Jarak mencancang
Distance of PQ Vertical distance

= -

= unit/ units

Jarak QR = Jarak mengufuk
Distance of QR Horizontal distance

= -

= unit/ units

Menggunakan teorem Pythagoras,
Using Pythagoras' theorem,

$PR = \sqrt{PQ^2 + QR^2}$

Jarak PR = $\sqrt{3^2 + 4^2}$
Distance

= $\sqrt{\quad}$

= unit/ units

Jarak PR melalui Q
Distance of PR passing through Q

= +

= unit/ units

Maka, jarak P ke R adalah jarak terpendek
tanpa melalui Q.
Thus, the distance of P to R is the shortest distance
without passes through Q.

2. Tentukan jarak di antara PQ dan RS. (TP1)

Determine the distance between PQ and RS.

Contoh PdPc

(i)

$PQ = 6 - (-4) = 10$ unit/ units

Nilai besar - Nilai kecil
Large value - Small value

(ii)

$RS = 6 - 2 = 4$ unit/ units

(a)

Jarak PQ/ Distance of PQ
= $-(-3)$
= unit/ units

(b)

Jarak PQ/ Distance of PQ
= $-(-15)$
= unit/ units

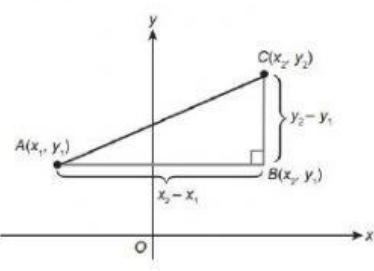
(c)

Jarak RS/ Distance of RS
= $4 - (\quad)$
= unit/ units

(d)

Jarak RS/ Distance of RS
= $20 - (\quad)$
= unit/ units

3. Berdasarkan rajah di bawah, lengkapkan yang berikut untuk menerbitkan rumus jarak. (TP2)
Based on the diagram below, complete the following to derive the formula of the distance.

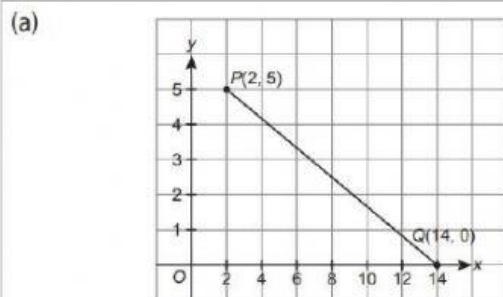


Jarak AB / Distance of AB = $x_2 - x_1$

Jarak BC / Distance of BC = $y_2 - y_1$

Menggunakan teorem Pythagoras/ Using the Pythagoras' theorem,
 $AC^2 = AB^2 + BC^2$
 $= (x_2 - x_1)^2 + (y_2 - y_1)^2$
 $AC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

4. Hitung jarak di antara titik P dan titik Q. (TP3)
Calculate the distance between point P and point Q.

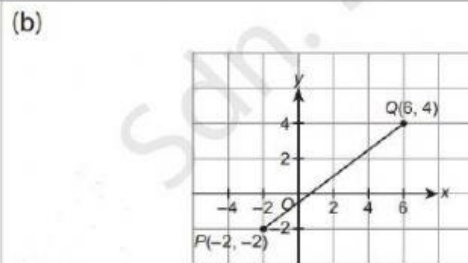


Jarak PQ/ Distance of PQ

$$= \sqrt{(14 - 2)^2 + (0 - 5)^2}$$

$$= \sqrt{\quad + \quad}$$

$$= \sqrt{\quad}$$



Jarak PQ/ Distance of PQ

$$= \sqrt{[-2 - (-2)]^2 + [4 - (-2)]^2}$$

$$= \sqrt{\quad + \quad}$$

$$= \sqrt{\quad}$$

- (c) P(2, 2), Q(6, 5)

Jarak PQ/ Distance of PQ

$$= \sqrt{(6 - 2)^2 + (5 - 2)^2}$$

$$= \sqrt{\quad + \quad}$$

$$= \sqrt{\quad}$$

$$= \text{unit / units}$$

- (d) P(1, 4), Q(5, 1)

Jarak PQ/ Distance of PQ

$$= \sqrt{(5 - 1)^2 + (1 - 4)^2}$$

$$= \sqrt{\quad + \quad}$$

$$= \sqrt{\quad}$$

$$= \text{unit / units}$$

e) $P(-1, -3), Q(5, 4)$

Jarak PQ/ Distance of PQ

$$= \sqrt{[5 - (-1)]^2 + [4 - (-3)]^2}$$

$$= \sqrt{6^2 + 7^2}$$

$$= \sqrt{36 + 49}$$

$$= \sqrt{85} \text{ unit / units}$$

(f) $P(6, -2), Q(-2, -12)$

Jarak PQ/ Distance of PQ

$$= \sqrt{(-2 - 6)^2 + [-12 - (-2)]^2}$$

$$= \sqrt{(-8)^2 + (-10)^2}$$

$$= \sqrt{64 + 100}$$

$$= \sqrt{164} \text{ unit / units}$$