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*

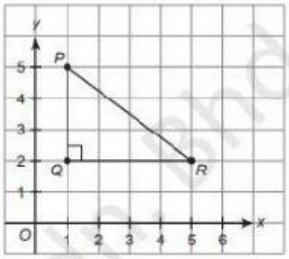
Menggunakan teorem Pythagoras,
Using Pythagoras' theorem,

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

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

$= \sqrt{[\ ]}$

= [ ] unit/ *units*



Jarak *PR* melalui *Q*
Distance of PR passing through Q

= [ ] + [ ]

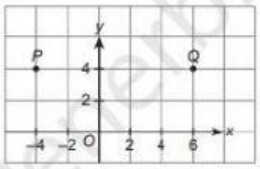
= [ ] unit/ *units*

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

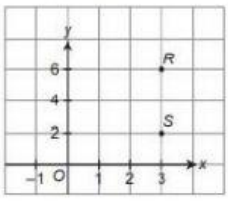
(i)



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

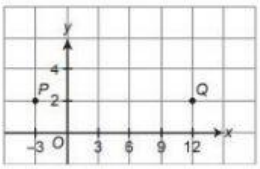
Nilai besar − Nilai kecil
Large value − Small value

(ii)



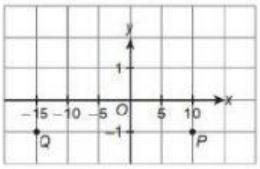
$RS = 6 - 2 = 4$ unit/ *units*

(a)



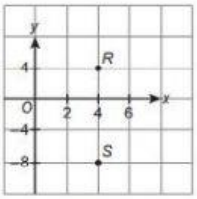
Jarak *PQ*/ *Distance of PQ*
= − (−3)
= unit/ *units*

(b)



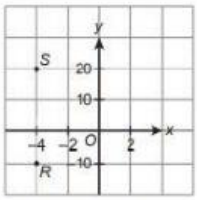
Jarak *PQ*/ *Distance of PQ*
= − (−15)
= unit/ *units*

(c)



Jarak *RS*/ *Distance of RS*
= 4 − ( )
= unit/ *units*

(d)



Jarak *RS*/ *Distance of RS*
= 20 − ( )
= unit/ *units*

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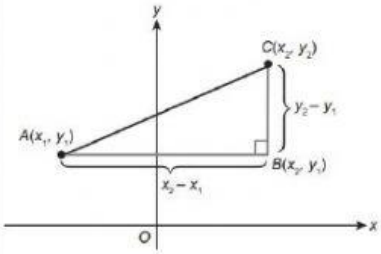
3. Berdasarkan rajah di bawah, lengkapkan yang berikut untuk menerbitkan rumus jarak. (TP2)
Based on the diagram below, complete the following to derive the formula of the distance.



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,*

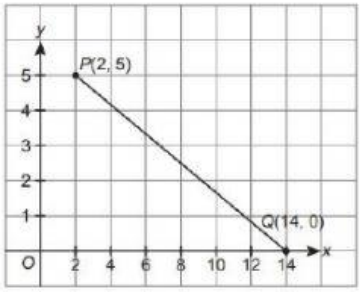
$AC^2 = AB^2 + BC^2$

$= (x_2 - x_1)^2 + (y_2 - y_1)^2$

$AC = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

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

(a)



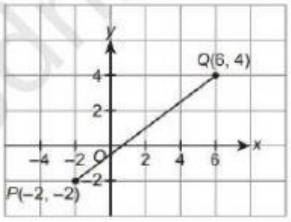
Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\ \ }$

(b)



Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\ \ }$

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

Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\ \ }$

$=$ unit / *units*

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

Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\ \ }$

$=$ unit / *units*

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

Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\quad}$

$=$ unit / *units*

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

Jarak PQ/ *Distance of PQ*

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

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

$= \sqrt{\quad}$

$=$ unit / *units*

LIVEWORKSHEETS