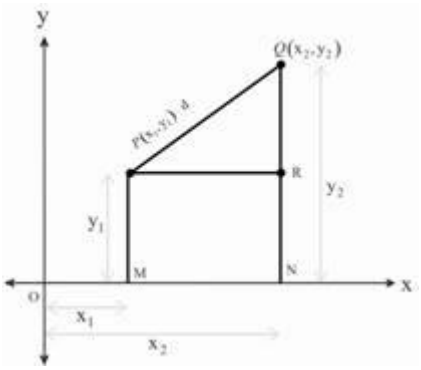
DISTANCE FORMULA

Find the distance between the points whose co-ordinates are given.

Let P (x_1, y_1) and Q (x_2, y_2) be two given points in the co-ordinate plane.

Draw PM, QN perpendicular on x-axis and PR perpendicular on NQ

From the figure.



PR= MN=ON-OM

$=X_2-X_1$

RQ=NQ-NR=NQ-MP

$=Y_2-Y_1$

From right angled

ΔPRQ BY Pythagoras

Theorem, we get

$PQ^2=PR^2+RQ^2$

$=(X_2-X_2)^2+(Y_2-Y_2)^2$

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

Distance from origin (0,0)

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

$=\sqrt{x^2+y^2}$

Find the distance between the points P (3,-5) and Q(8,7)

By Formula distance between the given points = $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$= \sqrt{(8-3)^2+(7+5)^2}$

$= \sqrt{5^2+12^2}$

$= \sqrt{25 + 144}$

$=\sqrt{169}$

=13units.