



3055 BA SANGAM COLLEGE

PH: 6674003/9264117 E-mail: basangam@connect.com.fj



WORKSHEET 17

School: Ba Sangam College

Year / Level: 11

Subject: Mathematics

Name of Student: _____

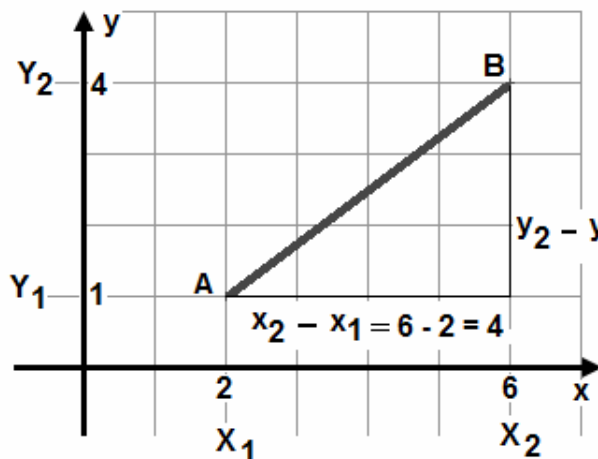
Strand	5 - COORDINATE GEOMETRY
Sub strand	5.1 - Coordinates
Content Learning Outcome	Explore and analyze two points on a Cartesian plane.

DISTANCE BETWEEN TWO POINTS

If $A(x^1, y^1)$ and $B(x^2, y^2)$ are two points then the distance between these two points is found by the formula given below.

Example

Find the distance between the points A (2, 1) and B (6, 4).



Solution

$$A(2, 1) \rightarrow x^1 = 2 \text{ and } y^1 = 1$$

$$B(6, 4) \rightarrow x^2 = 6 \text{ and } y^2 = 4$$

Then :

$$y_2 - y_1 = 4 - 1 = 3$$

$$x_2 - x_1 = 6 - 2 = 4$$

$$= 5$$

ACTIVITY

DISTANCE BETWEEN POINTS

1. Find the distance between the points (-4, -5) and (1, -2). (2m)
2. Find the length of the line segment whose endpoints are (-3, 4) and (5, 4). (2m)

5.2 THE MID POINT FORMULA

The midpoint of a straight line segment joining the points (x^1, y^1) and (x^2, y^2) is:

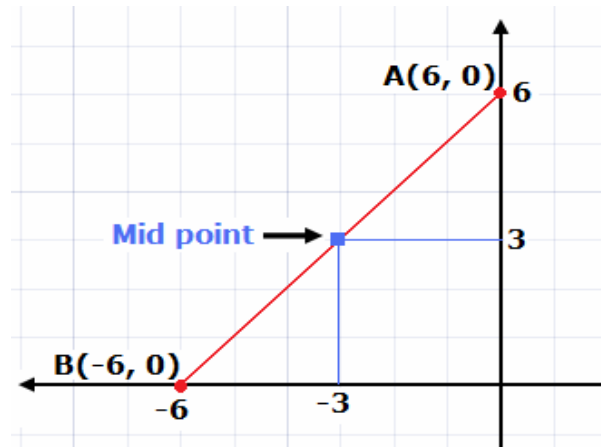
$$\text{midpoint } (x,y) = \left(\frac{x^1 + x^2}{2}, \frac{y^1 + y^2}{2} \right)$$

Example

Find the midpoint of $A(0,6)$ and $B(-6,0)$

Solution

$$\begin{aligned} & A(0, 6) \text{ and } B(-6, 0) \\ & A(x_1, y_1) \text{ and } B(x_2, y_2) \\ & \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \\ & \left(\frac{0 + (-6)}{2}, \frac{6 + 0}{2} \right) \\ & \left(\frac{-6}{2}, \frac{6}{2} \right) \\ & \underline{\underline{(-3, 3)}} \end{aligned}$$



Example

Find the midpoint of $A(3,6)$ and $B(-7,2)$.

$$\begin{aligned} & A(3, 6) \text{ and } B(-7, 2) \\ & A(x_1, y_1) \text{ and } B(x_2, y_2) \end{aligned} \rightarrow \begin{aligned} & \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \\ & \left(\frac{3 + (-7)}{2}, \frac{6 + 2}{2} \right) \\ & \left(\frac{-4}{2}, \frac{8}{2} \right) \rightarrow \underline{\underline{(-2, 4)}} \end{aligned}$$

ACTIVITY

1. Find the midpoint of the segment connecting the points (6,4) and (3,-4). (2m)
2. M is the midpoint of . The coordinates of A are (-2,3) and the coordinates of M are (1,0). Find the coordinates of B. (2m)

THE END