

Perpendicular Bisectors

Activity One

Find the perpendicular bisector of the line joining the points $(-2, 11)$ and $(4, -7)$.

Follow the solution and explain what is happening at each stage.

Solution:

$$-\frac{18}{6} = -3$$

Explanation:

$$-3 \rightarrow \frac{1}{3}$$

$$y = \frac{1}{3}x + c$$

$$(1, 2)$$

$$2 = \frac{1}{3} \times 1 + c$$

$$c = \frac{5}{3}$$

$$y = \frac{1}{3}x + \frac{5}{3}$$

$$3y = x + 5$$

Activity Two: Instructions

Below are three multistage problems. The solutions are muddled up. Students have to sort them out and stick them down under the correct problem and in an appropriate order. Students should be asked to write an explanation of what is happening at each stage alongside the solutions.

Activity Two

Problem 1: Find the equation of the perpendicular bisector of AB where A is the point (2, 10) and B is the point (6, 2)

Problem 2: Find the equation of the perpendicular bisector of AB where A is the point (2, 0) and B is the point (6, 2)

Problem 3: Find the equation of the perpendicular bisector of AB where A is the point (2, -6) and B is the point (6, 2)

$y = \frac{1}{2}x + 4$	Equation of perpendicular bisector is $y = \frac{1}{2}x + c$
Mid point of AB is (4, 1)	$c = 0$
$y = -2x + 9$	Mid point of AB is (4, -2)
Gradient of AB = -2	Gradient of the perpendicular is $-\frac{1}{2}$
$y = -\frac{1}{2}x$	Gradient of the perpendicular is -2
Equation of perpendicular bisector is $y = -\frac{1}{2}x + c$	$c = 9$
Gradient of the perpendicular is $\frac{1}{2}$	Equation of perpendicular bisector is $y = -2x + c$
$c = 4$	Gradient of AB = $\frac{1}{2}$
Mid point of AB is (4, 6)	$2y = x + 8$
Gradient of AB = 2	$y + 2x = 9$
$2y + x = 0$	