Lower 6 Chapter 5

Linear Graphs

Chapter Overview

1. $y=mx+c$

2. Parallel and perpendicular lines

3. Lengths and Areas

4. Modelling



1. Linear Graphs

Examples:

1. The point $\left(5,a\right)$ lies on the line with equation $y=3x+2$. Determine the value of $a$.

2. Find the coordinate of the point where the line $2x+y=5$ cuts the $x$-axis.

Test Your Understanding:

Determine where the line $x+2y=3$ crosses both the axes

Gradient

Examples:

Find the gradient of the line between the following sets of points:

1. $\left(1, 4\right)    (3, 10)$

2. $\left(5, 7\right)    (8, 1)$

3. $\left(2, 2\right)    (-1, 10)$

4. Show that the points $A\left(3,4\right),B\left(5,5\right),C\left(11,8\right)$ all lie on a straight line.

5. The line joining $\left(2,-5\right)$ to $\left(4,a\right)$ has gradient -1. Work out the value of $a$.

$$y=mx+c$$

Example:

Determine the gradient and $y$-intercept of the line with equation $4x-3y+5=0$

$$ax+by+c=0$$

Example

Express $y=\frac{1}{3}x-\frac{2}{3}$ in the form $ax+by+c=0$, where $a,b,c$ are integers.

Test Your Understanding

Express $y=\frac{2}{5}x+\frac{3}{5}$ in the form $ax+by+c=0$, where $a,b,c$ are integers.

Exercise 5A/B Page 90-93