

**UNIT 5** *Linear Graphs and Equations***Overhead Slides**

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**Overhead Slides**

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- 5.2 Coordinates of Points
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## OS 5.1

## Plotting Points

Plot the points with coordinates:

A (1, 7),

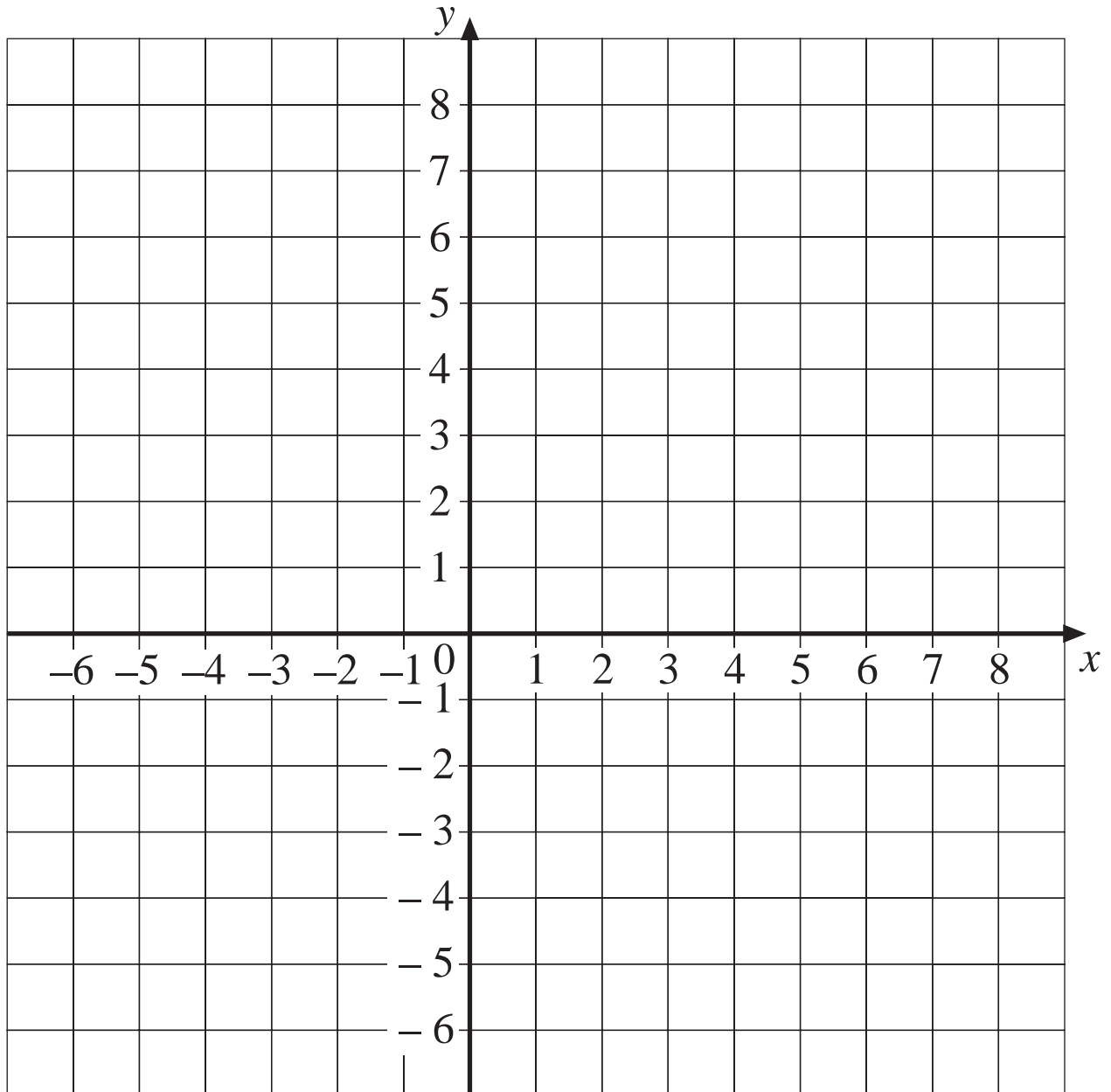
B (7, -5),

C (5, 7),

D (-3, -5),

E (7, 0),

F (-5, -6)



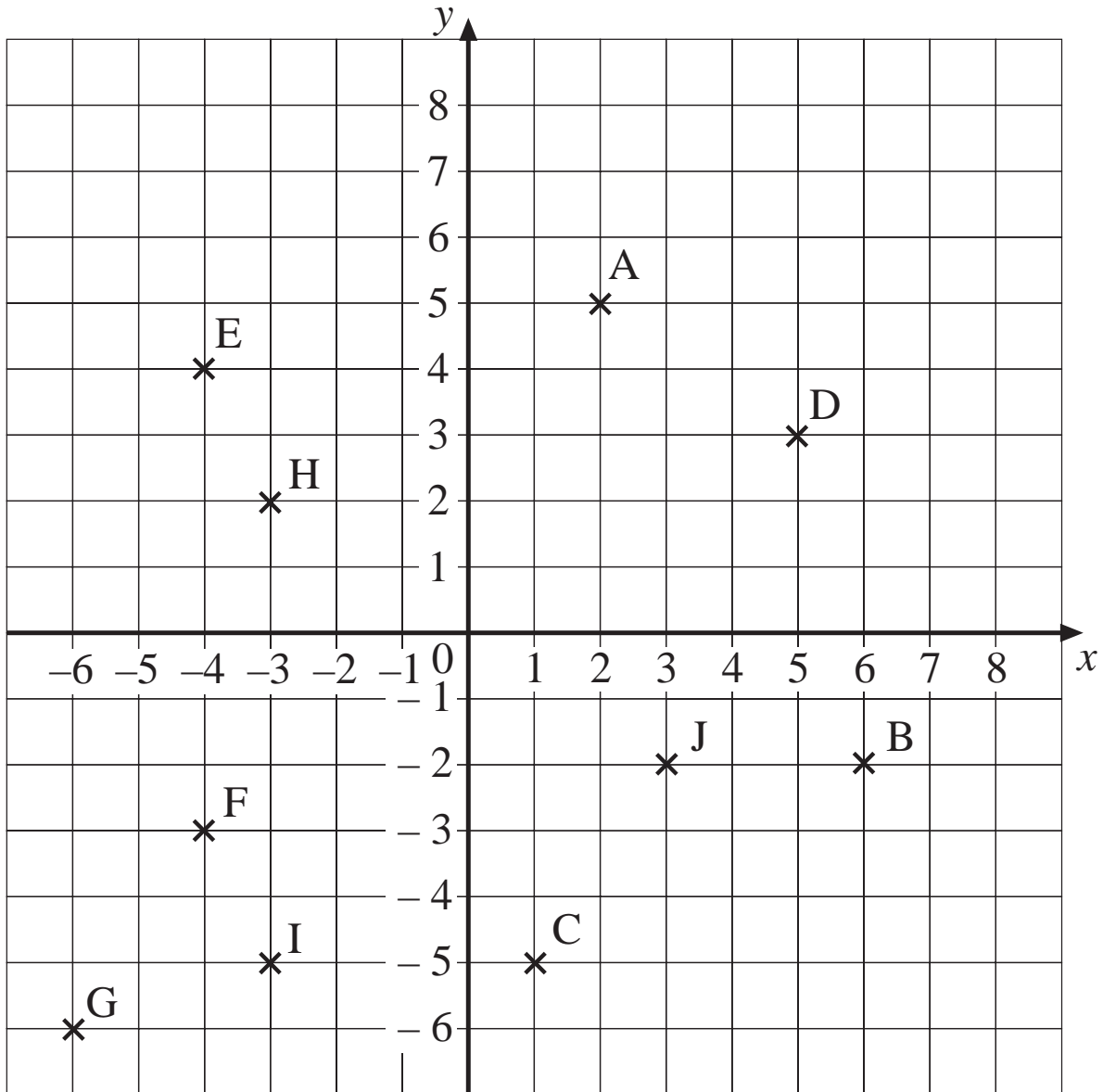
Join A and B. Join C and D. Join E and F.

What are the coordinates of the vertices of the triangle you have drawn?

## OS 5.2

## Coordinates of Points

Write down the coordinates of each point shown on this set of axes:



A (     ,     )

B (     ,     )

C (     ,     )

D (     ,     )

E (     ,     )

F (     ,     )

G (     ,     )

H (     ,     )

I (     ,     )

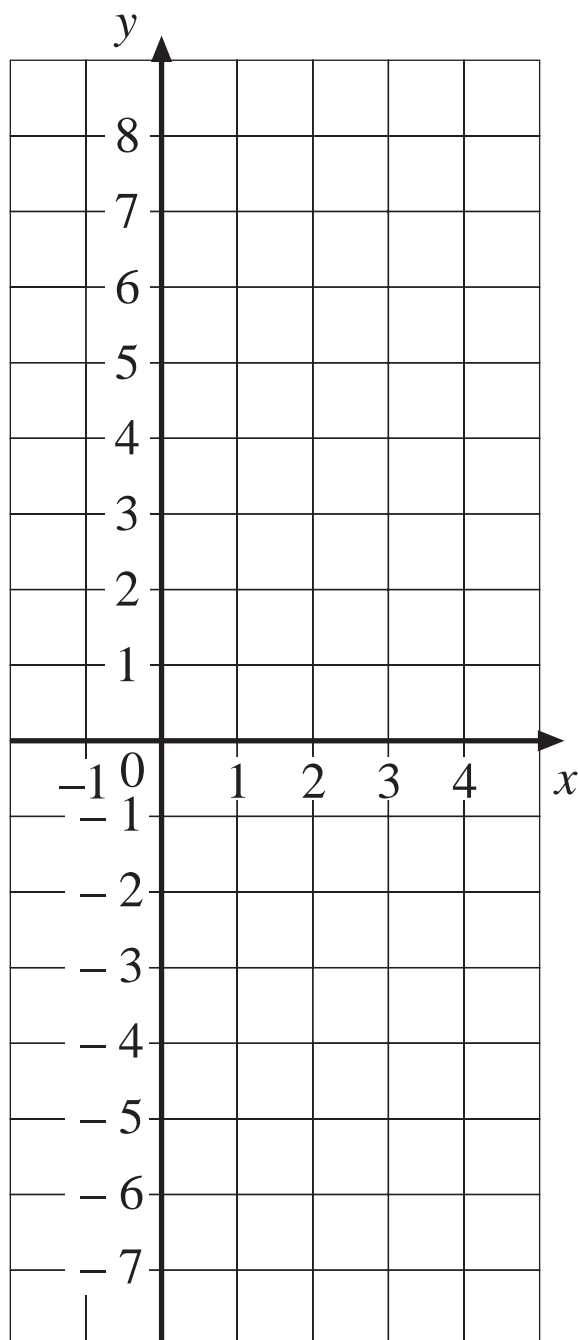
J (     ,     )

## OS 5.3

*Plotting a Graph*

Draw the graph with equation  $y = 3x - 4$ .

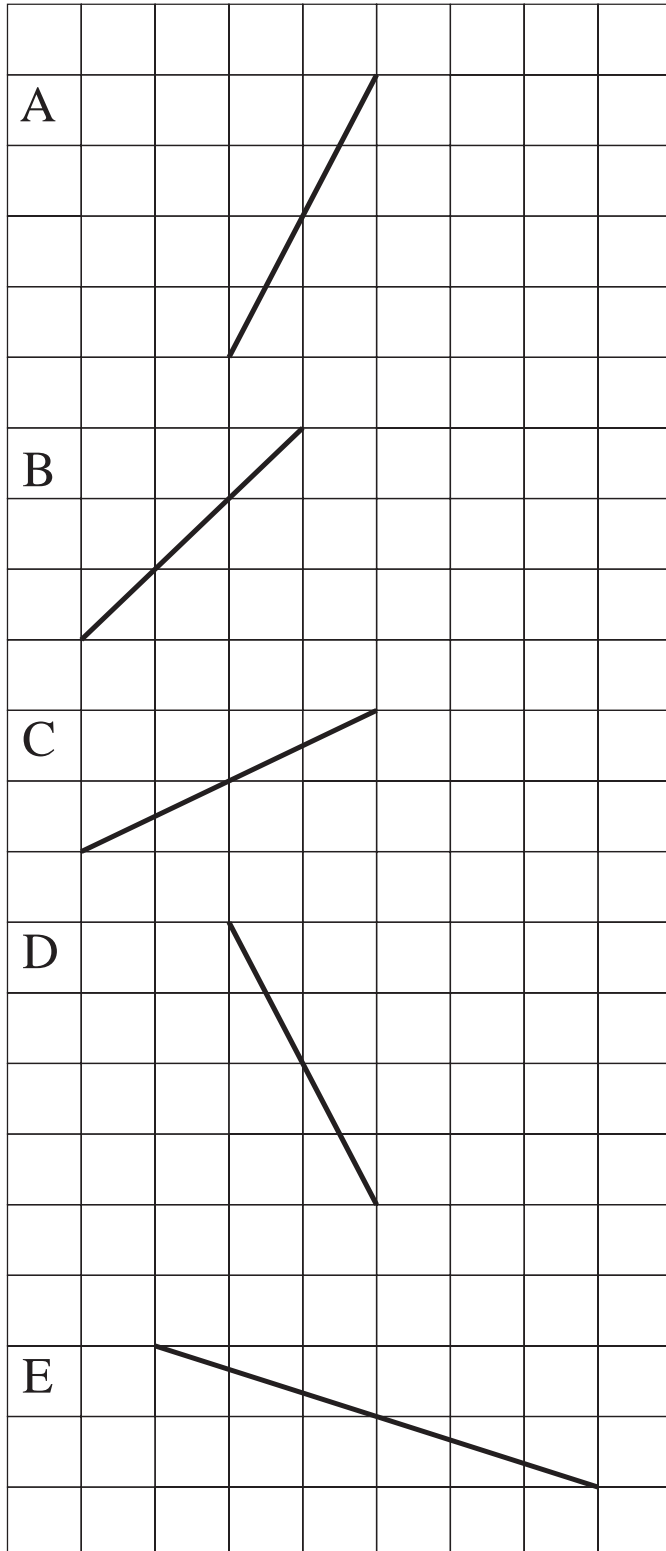
$x$	-1	0	1	2	3	4
$y$						



# OS 5.4

## Gradients of Lines

Calculate the gradient of each of the following lines:



Gradient = —

=

Gradient = —

=

Gradient = —

=

Gradient = —

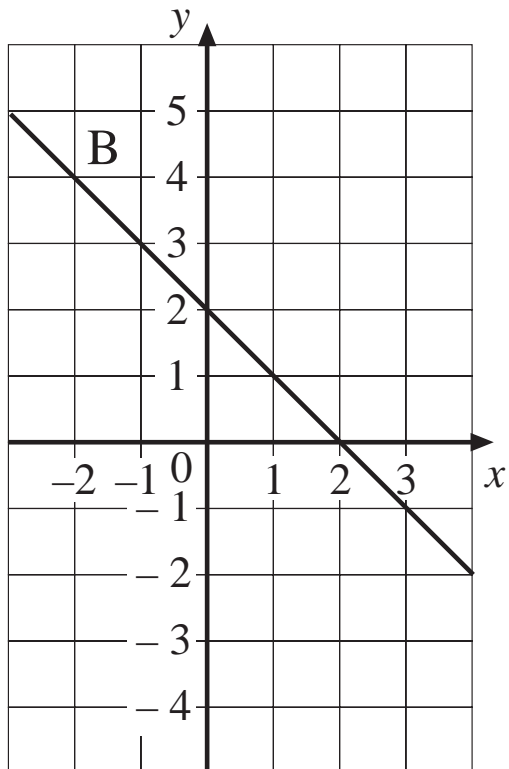
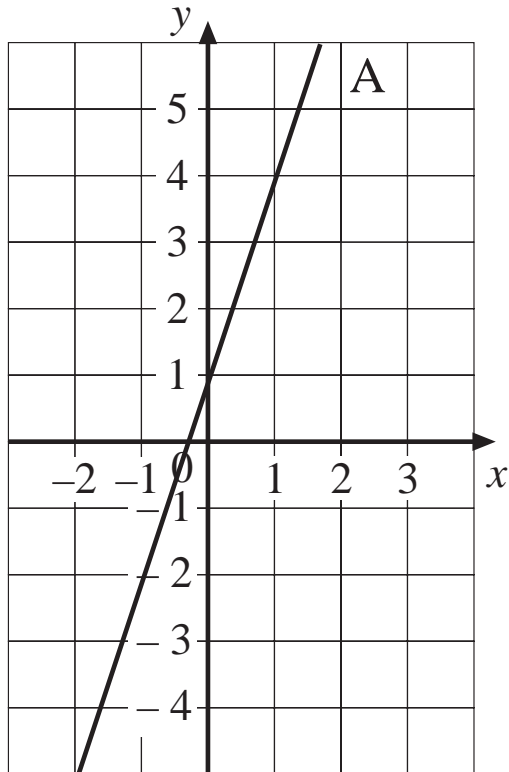
=

Gradient = —

=

**OS 5.5***Equations of Lines*

Determine the equation of each of the following lines:



**OS 5.6***Solving Straightforward Equations*

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Solve the following equations:

1.  $x + 11 = 20$

2.  $x - 5 = 9$

3.  $8x = 40$

4.  $\frac{x}{3} = 6$

**OS 5.7***Solving Equations*

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Solve the following equations:

1.  $3x - 4 = 11$

2.  $3(x + 6) = 21$

3.  $\frac{x - 5}{8} = 3$

4.  $5(2x - 8) = 60$

## OS 5.8

## Solving Equations with Graphs

Solve the equation  $7 - x = 2x + 1$ .

Draw the lines:

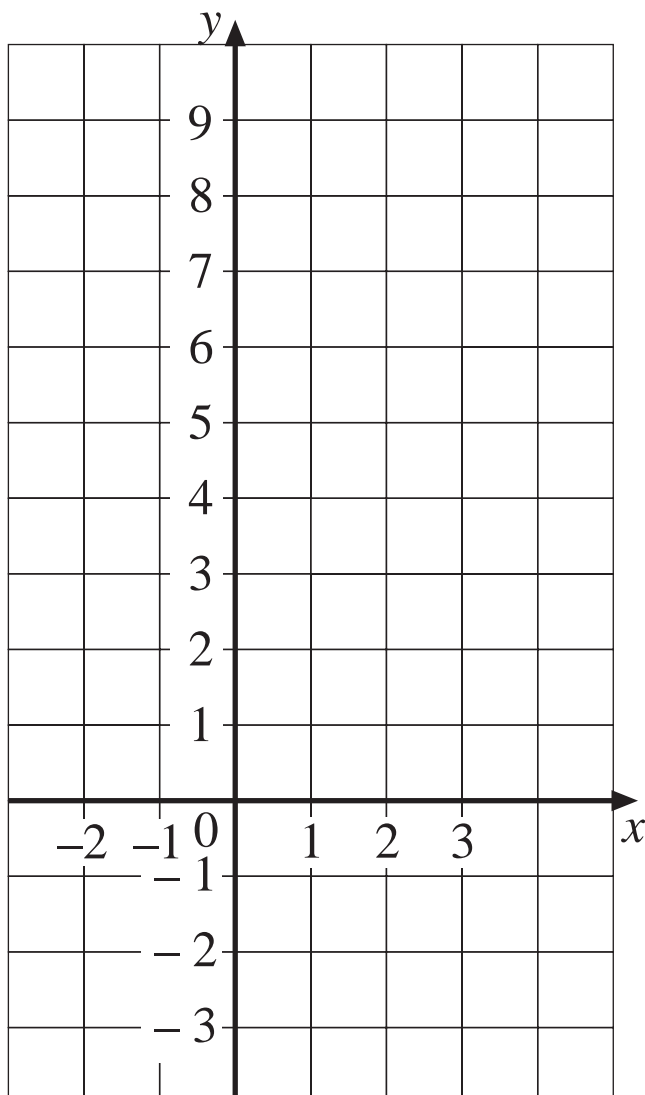
$$y = 7 - x$$

$x$	-2	-1	0	1	2	3
$y$						

and

$$y = 2x + 1$$

$x$	-2	-1	0	1	2	3
$y$						



The solution is where the lines intersect.

$$x = \square$$

$$y = \square$$

# OS 5.9

## Parallel Lines

Draw the lines with equations:

$$y = 2x + 1$$

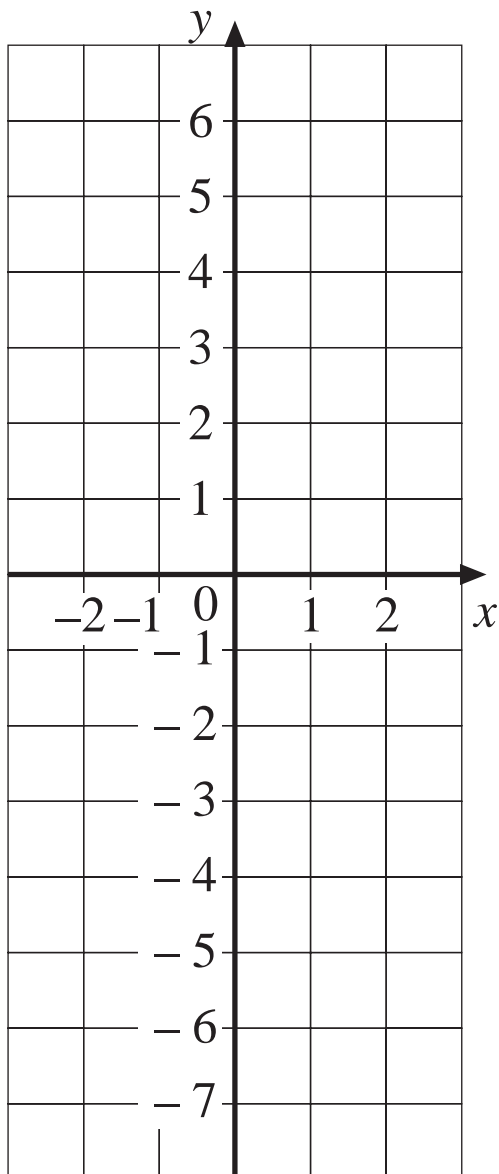
$x$	-2	-1	0	1	2
$y$					

$$y = 2x + 2$$

$x$	-2	-1	0	1	2
$y$					

$$y = 2x - 3$$

$x$	-2	-1	0	1	2
$y$					

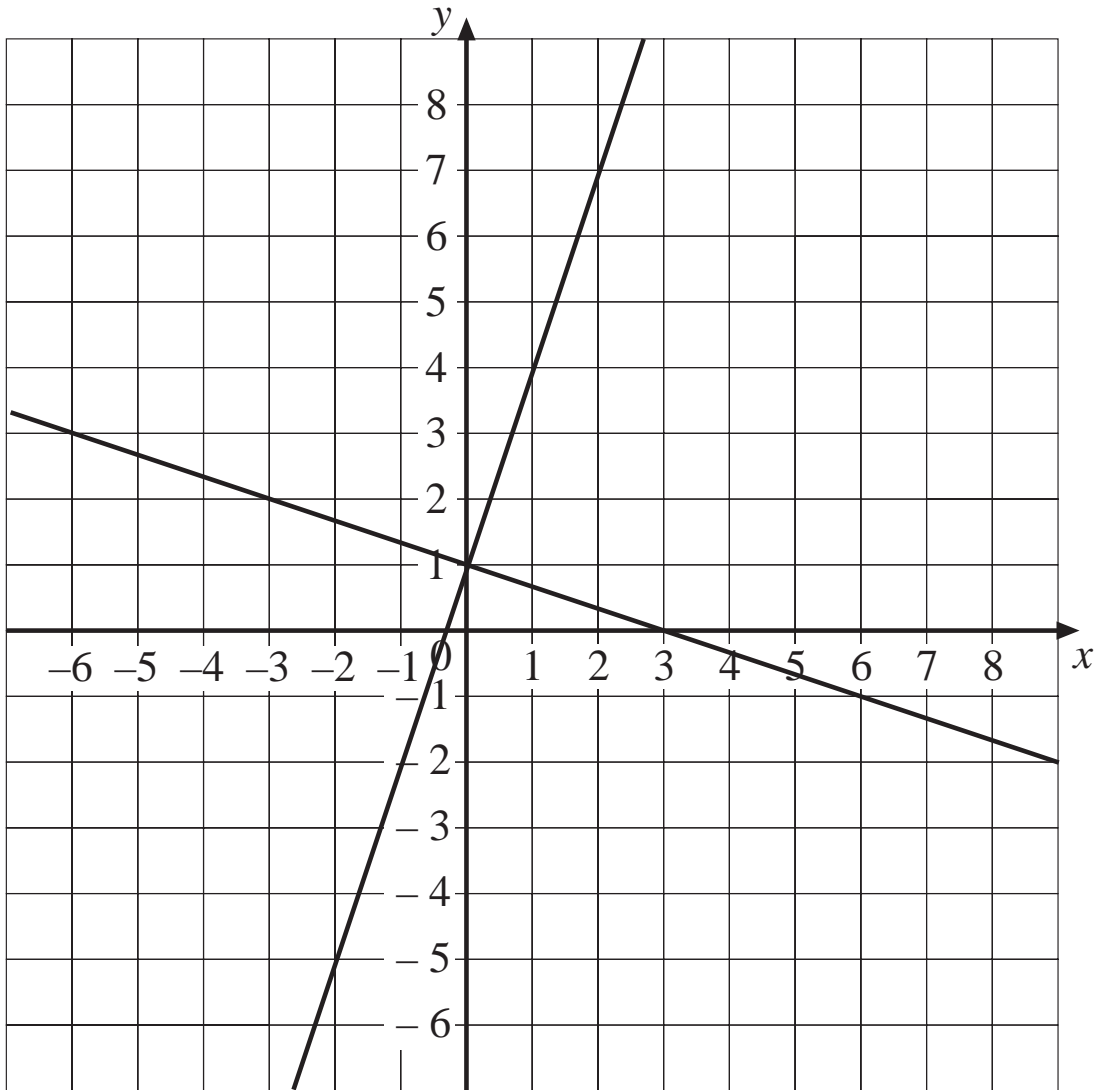


What is the same about each equation?

## OS 5.10

*Perpendicular Lines*

Two perpendicular lines are shown below:



Determine the equation of each line.

Describe how the two equations are related.

## OS 5.11 *Simultaneous Equations: Graphical Method*

Use a graph to solve the simultaneous equations:

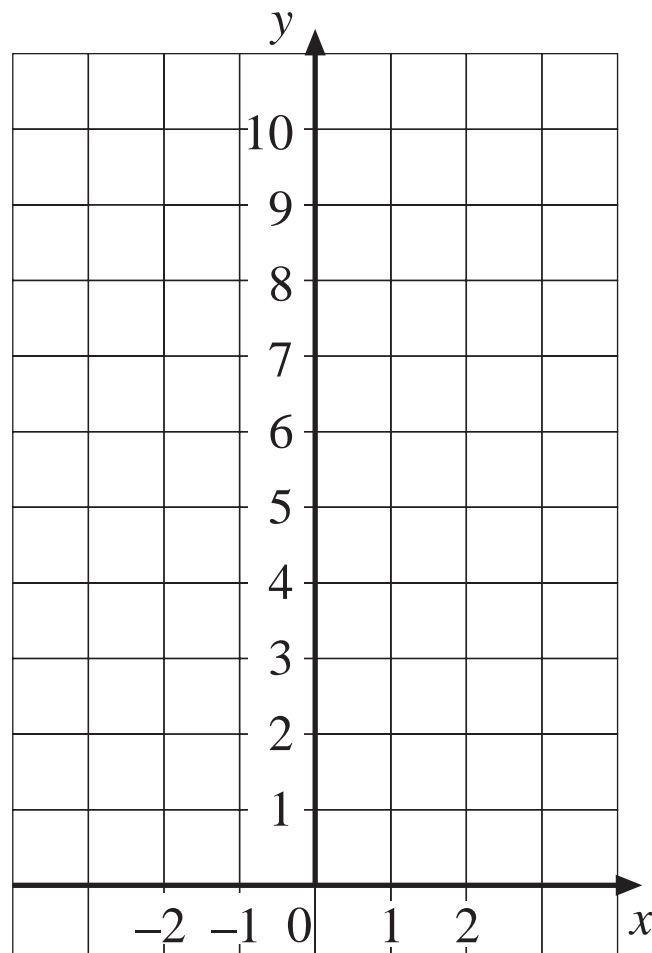
$$x + y = 5 \quad \text{and} \quad 2x + y = 6$$

$$y =$$

$$y =$$

$x$	-2	-1	0	1	2
$y$					

$x$	-2	-1	0	1	2
$y$					



*Solution*  $x =$                       and  $y =$

## OS 5.12      *Simultaneous Equations: Elimination Method*

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Solve the simultaneous equations:

$$2x + 4y = 22 \quad (1)$$

$$3x - 5y = -11 \quad (2)$$

$$(1) \times 5$$

$$(2) \times$$

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ADD

## OS 5.13

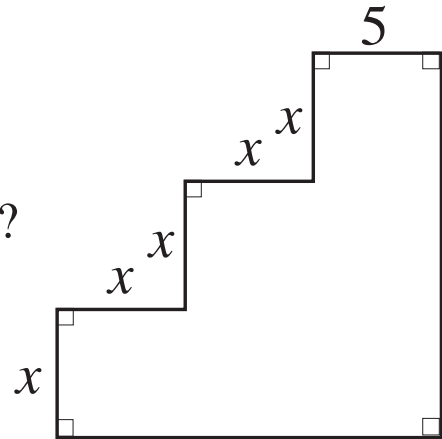
## Equations in Context

*Example 1*

The perimeter of this shape is 40 units.

What are the lengths of the 2 long sides?

Write down an equation and solve it to determine  $x$ .

*Example 2*

A window cleaner charges £2.20 per visit plus 40p per window. At one house he cleans  $n$  windows and charges £5.

Write down an equation and solve it to determine  $n$ .