

1. Complete the following table

Equation	Gradient	Intercept
$y = 5x + 3$		
$y = 4 - 2x$		
$y - 3x = 9$		
$y + 3x = 4$		
$x + y = 7$		
$10y = 5x - 20$		
$3y = 3x - 1$		
$2x - 3y = 1$		
$5y + 3x - 4 = 0$		
$4y - 2x + 3 = 0$		

Which two equations have the same gradient? Which two have the same y-intercept?

Find the equation of the line that passes through  $(-1, 1)$  and is parallel to  $2x + y - 3 = 0$ . Leave your answer in the form  $y = mx + c$ .

The equation of the line  $L_1$  is  $y = 2x - 3$

The equation of the line  $L_2$  is  $4y - 8x + 6 = 0$

Show that these lines are parallel.

2. Determine which of the following pairs of lines are parallel.

$y = 5x - 1$		$y = 8$	
$y = -5x - 2$		$y = 14$	
$y = x + 1$		$y = 2x + 3$	
$3x - 3y = 12$		$7y = 14x - 14$	
$6x - 2y = 4$		$7y = -4x - 8$	
$15x + 5y = 7$		$-8x + 14y = 13$	

3. Find the equation of the line that passes through  $(2, 4)$  and is parallel to  $y - 3x - 5 = 0$ . Leave your answer in the form  $y = mx + c$ .

4. Line **A** has equation  $3x - 4y = 5$

Line **B** goes through the points  $(4, 7)$  and  $(-1, 3)$

Are lines **A** and **B** parallel?

Show your working clearly.

Challenge.

Find the equation of the straight line joining  $(-2, 3 - 6p)$  to  $(-2 + 2p, 3)$ .

1. Complete the following table

Equation	Gradient	Intercept
$y = 5x + 3$	5	3
$y = 4 - 2x$	-2	4
$y - 3x = 9$	3	9
$y + 3x = 4$	-3	4
$x + y = 7$	-1	7
$10y = 5x - 20$		-2
$3y = 3x - 1$	1	$-\frac{1}{3}$
$2x - 3y = 1$	$\frac{2}{3}$	$-\frac{1}{3}$
$5y + 3x - 4 = 0$	$-\frac{3}{5}$	$\frac{4}{5}$
$4y - 2x + 3 = 0$		$-\frac{3}{4}$

Which two equations have the same gradient? Which two have the same y-intercept?

Find the equation of the line that passes through (-1, 1) and is parallel to  $2x + y - 3 = 0$ . Leave your answer in the form  $y = mx + c$ .

$$y = -2x - 1$$

The equation of the line  $L_1$  is  $y = 2x - 3$

The equation of the line  $L_2$  is  $4y - 8x + 6 = 0$

Show that these lines are parallel.

2. Determine which of the following pairs of lines are parallel.

$y = 5x - 1$ $y = -5x - 2$	No. Gradients are not equal (5 and -5)
$y = x + 1$ $3x - 3y = 12$	Yes. Gradients are equal (1)
$6x - 2y = 4$ $15x + 5y = 7$	No. Gradients are not equal (3 and -3)

$y = 8$ $y = 14$	Yes. Gradients are equal (0).
$y = 2x + 3$ $7y = 14x - 14$	Yes. Gradients are equal (2).
$7y = -4x - 8$ $-8x + 14y = 13$	No. Gradients are not equal ( $-\frac{4}{7}$ and $\frac{4}{7}$ )

3. Find the equation of the line that passes through (2, 4) and is parallel to  $y - 3x - 5 = 0$ . Leave your answer in the form  $y = mx + c$ .  $y = 3x - 2$

4. Line **A** has equation  $3x - 4y = 5$

Line **B** goes through the points (4, 7) and (-1, 3)

Are lines **A** and **B** parallel?

Show your working clearly.

Line **A** can be rewritten as  $4y = 3x - 5$  and then  $y = \frac{3}{4}x - \frac{5}{4}$  so the gradient of line **A** is  $\frac{3}{4}$

The gradient of line **B** is  $\frac{4}{5}$ . Hence, the lines are not parallel.

Challenge.

Find the equation of the straight line joining  $(-2, 3 - 6p)$  to  $(-2 + 2p, 3)$ .

$$y = 3x + 9 - 6p$$