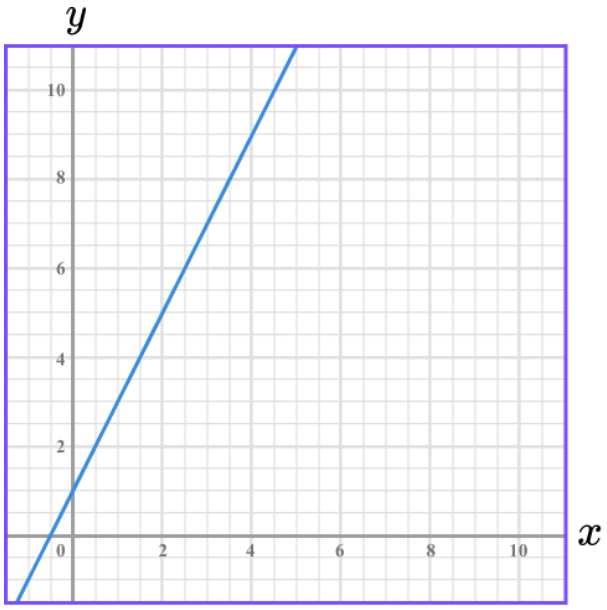
Equation of a Line - Worksheet

Skill

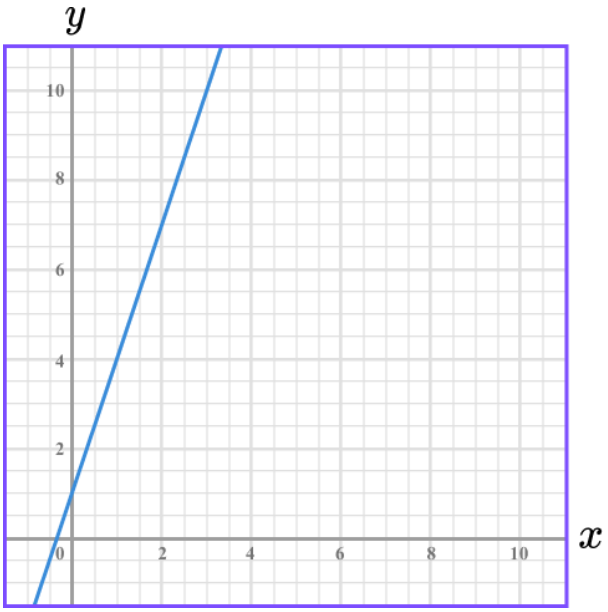
Group A - Gradient of a line

Calculate the gradient of the following lines:

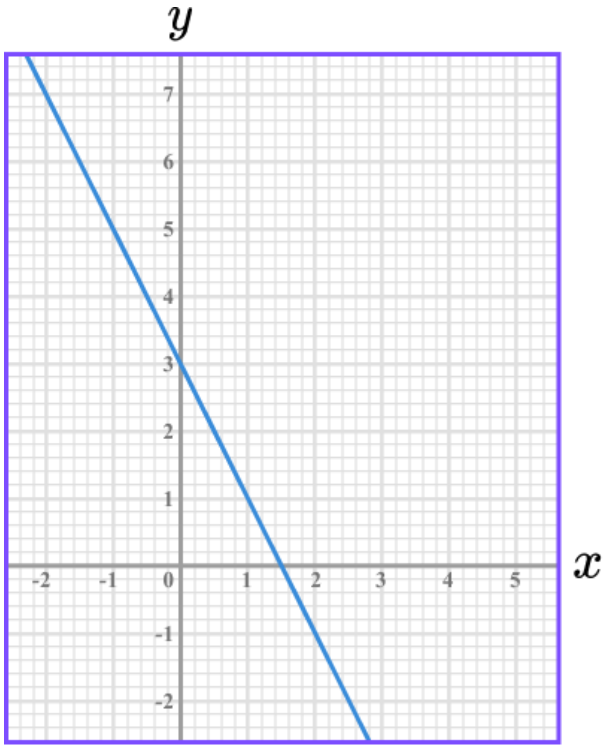
1)



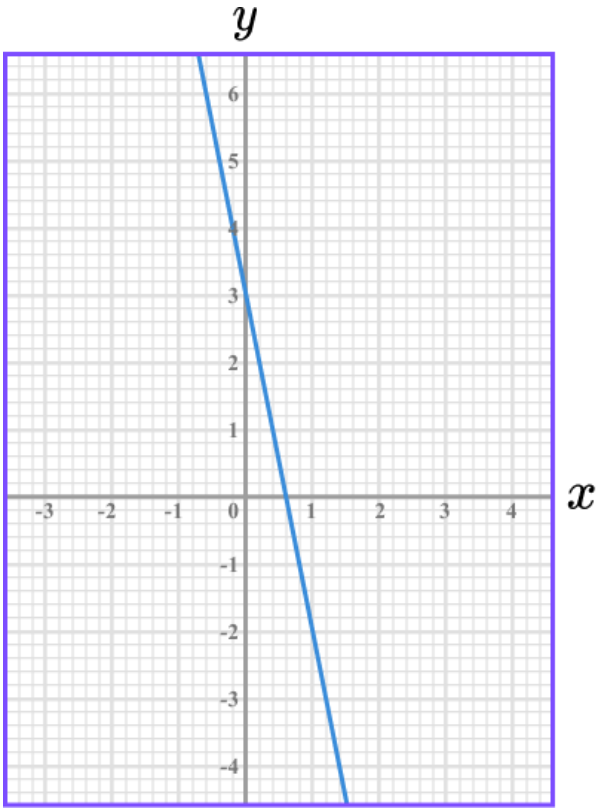
2)



3)

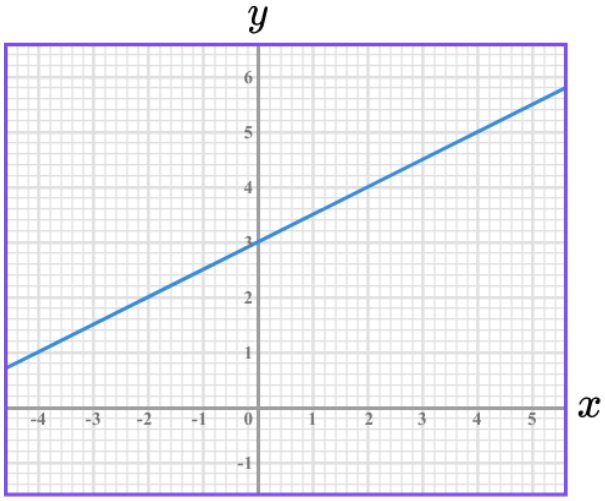


4)

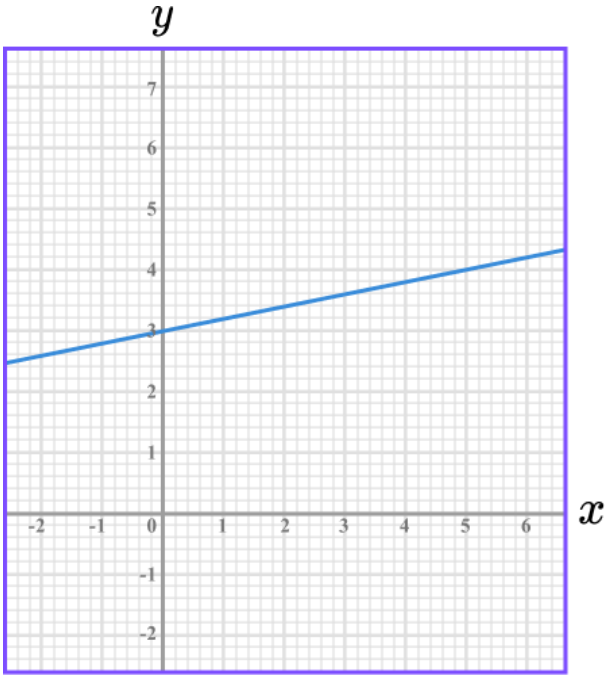


Equation of a Line - Worksheet

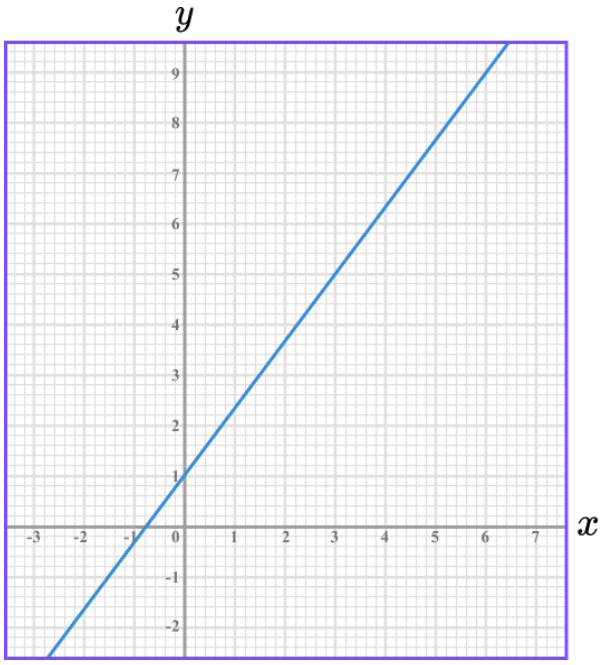
5)



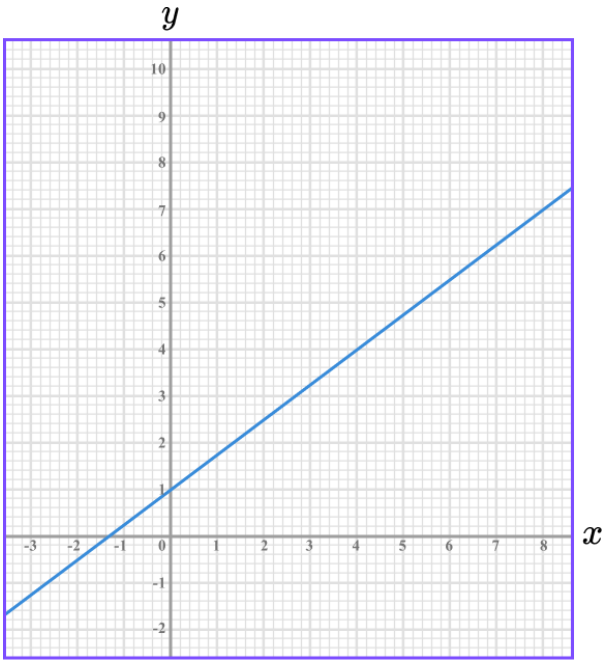
6)



7)

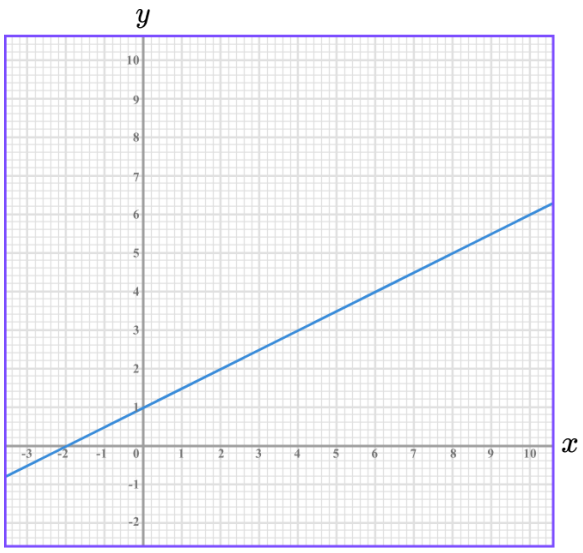


8)

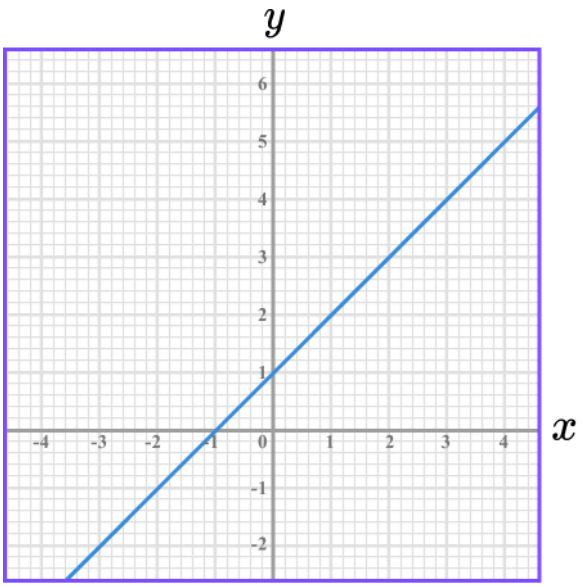


Equation of a Line - Worksheet

9)



10)



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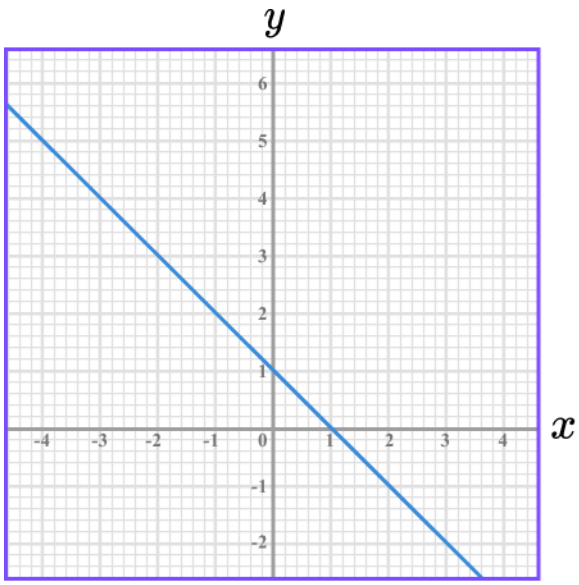
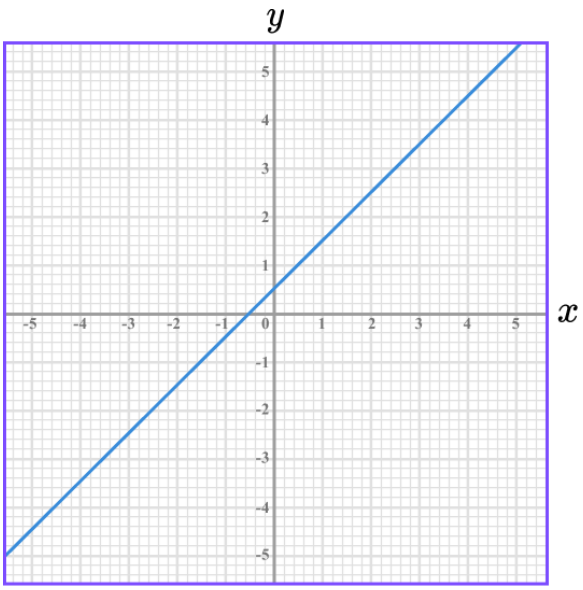


12)

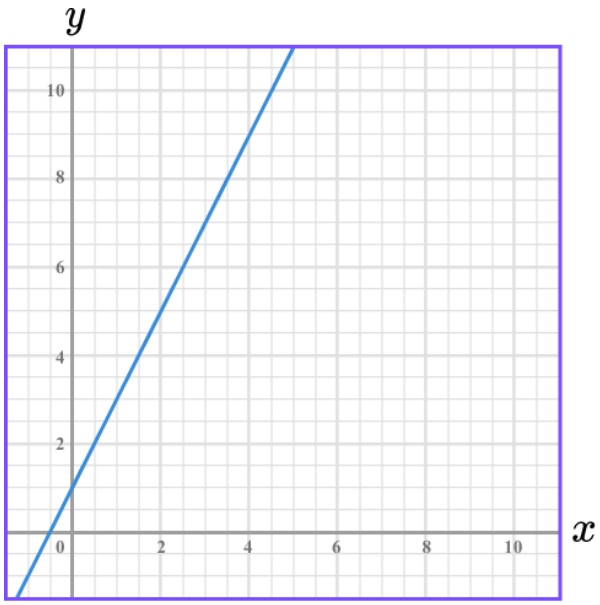


Equation of a Line - Worksheet

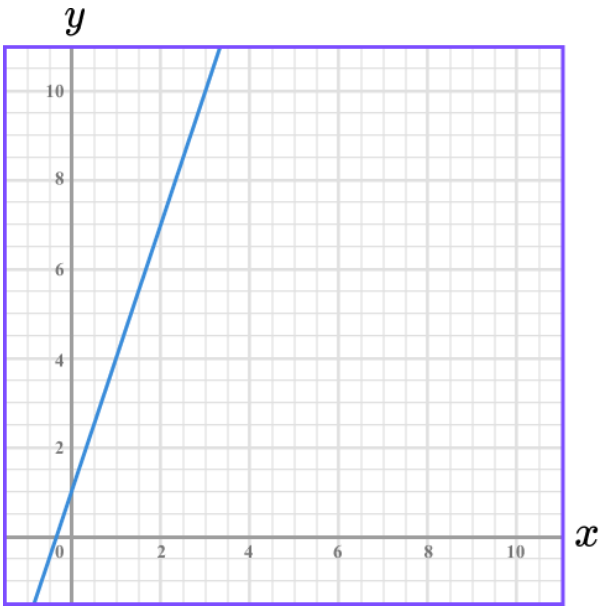
Group B - Identifying the y-intercept

Identify the y-intercept of the following lines:

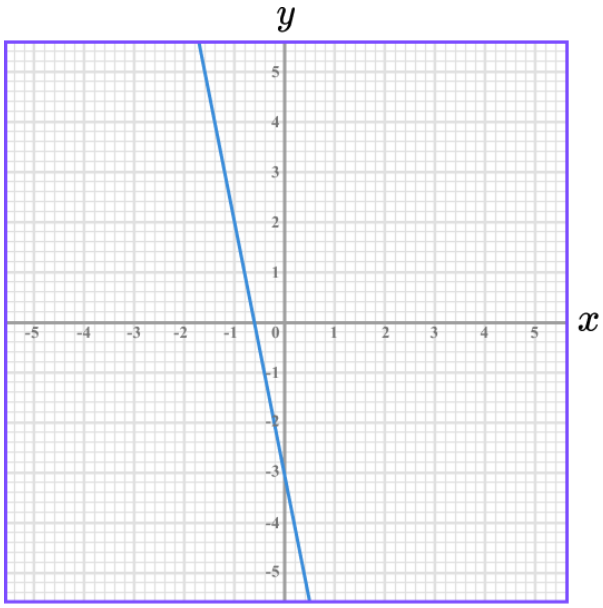
1)



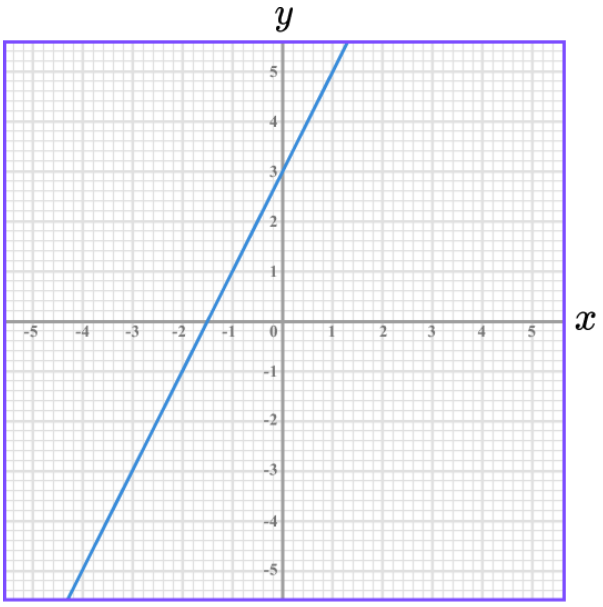
2)



3)

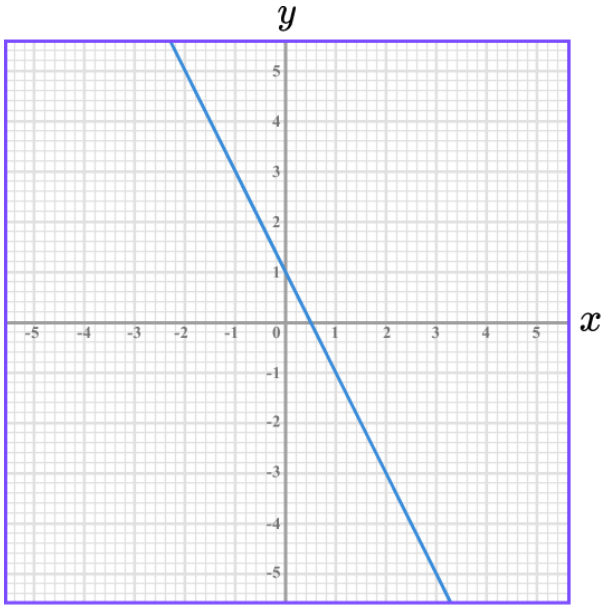


4)

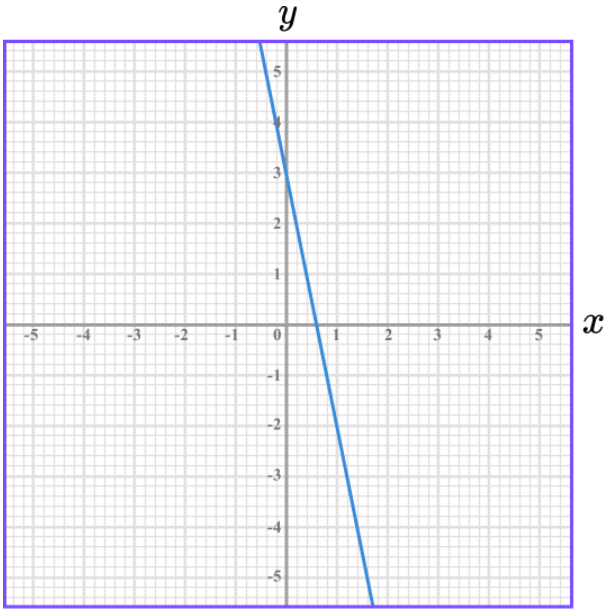


Equation of a Line - Worksheet

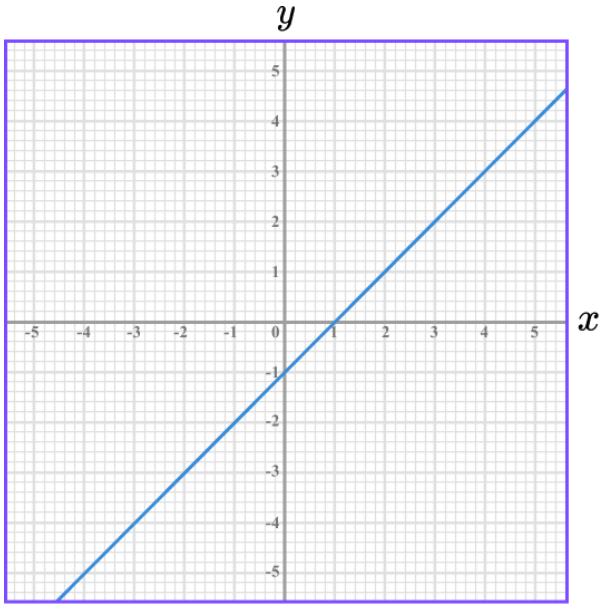
5)



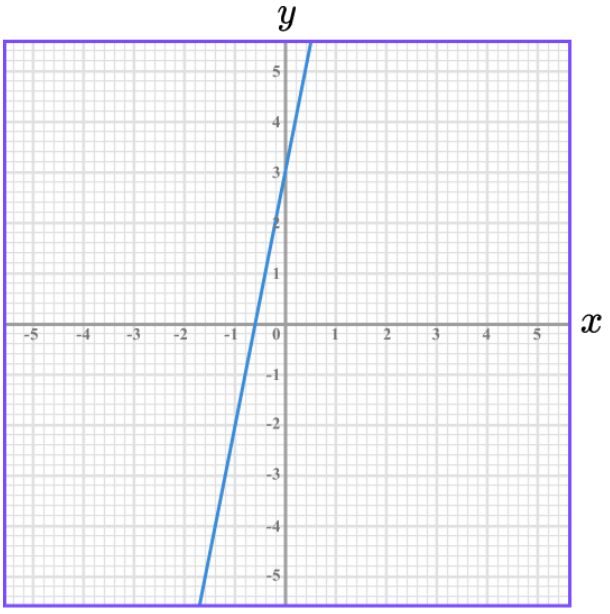
6)



7)

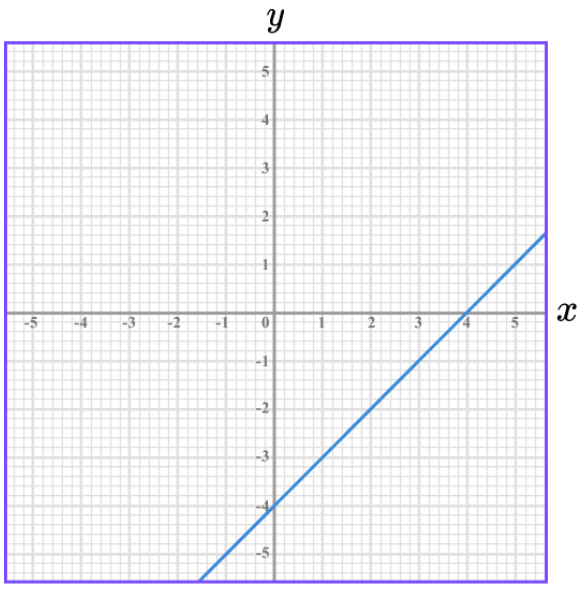


8)

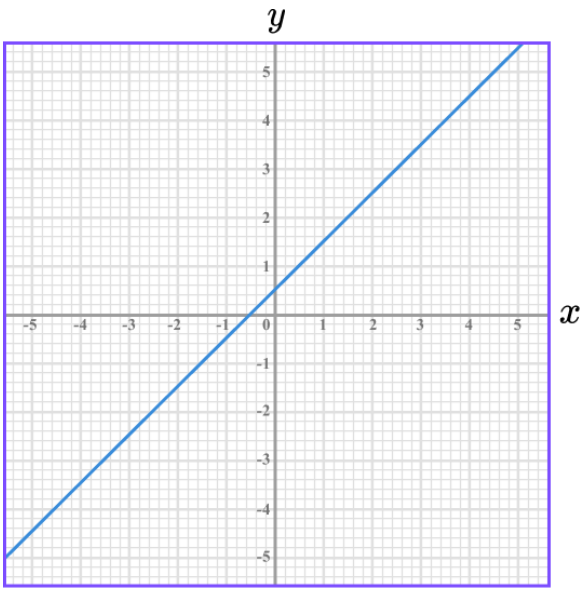


Equation of a Line - Worksheet

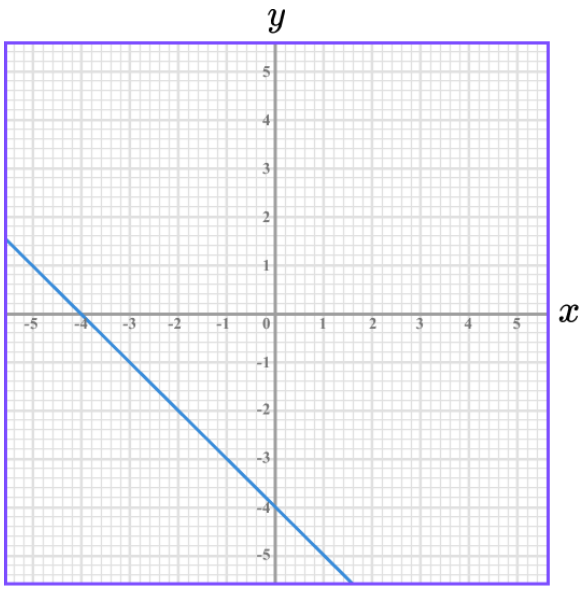
9)



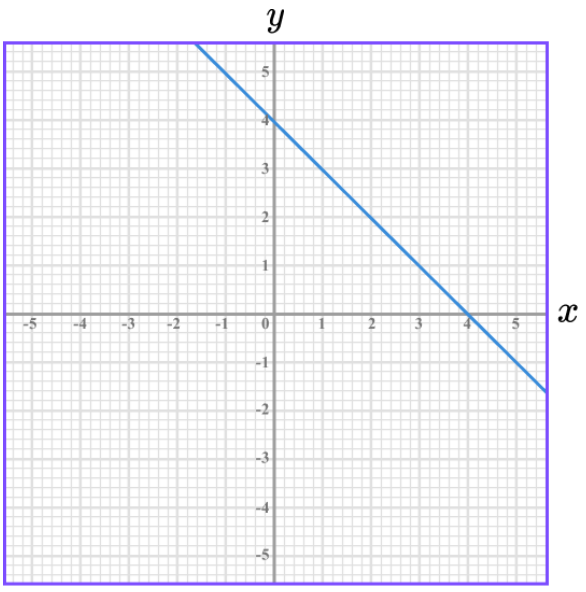
10)



11)



12)

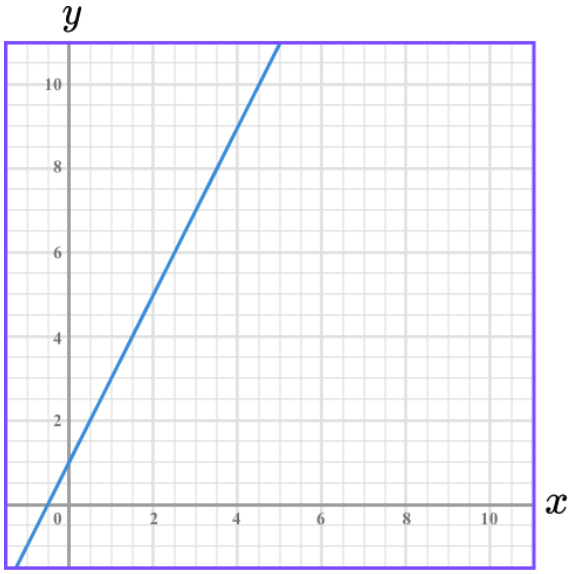


Equation of a Line - Worksheet

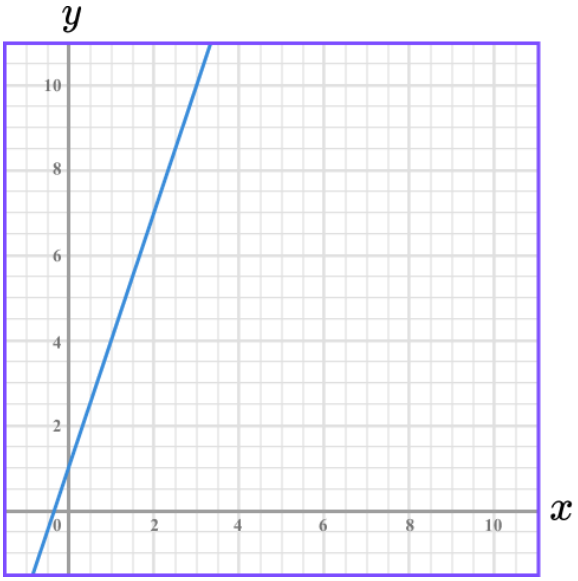
Group C - Find the equation of a line in the form $y = mx + c$

Write down the equation of the lines below in the form $y = mx + c$:

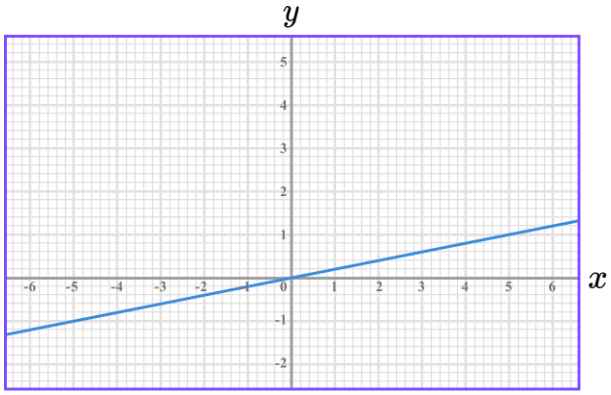
1)



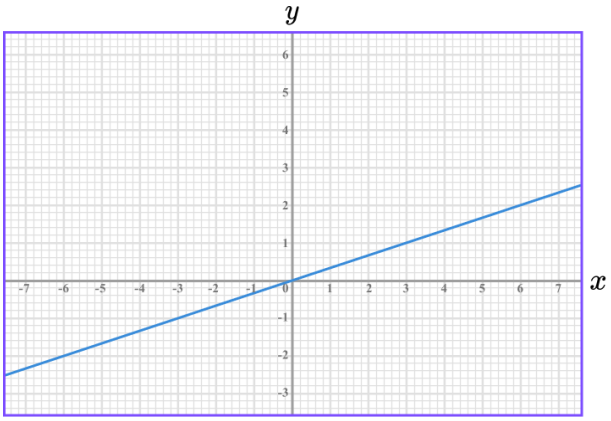
2)



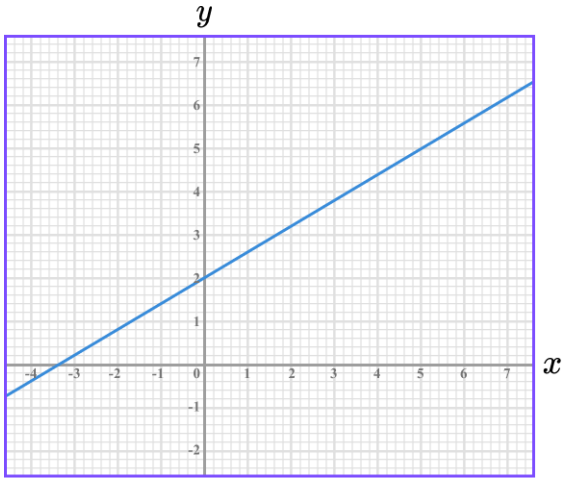
3)



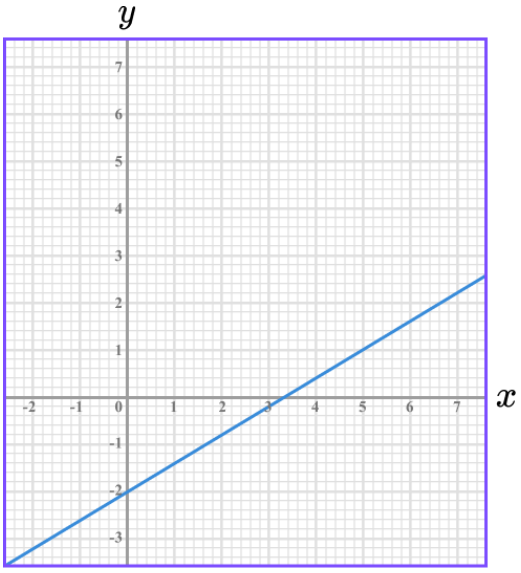
4)



5)

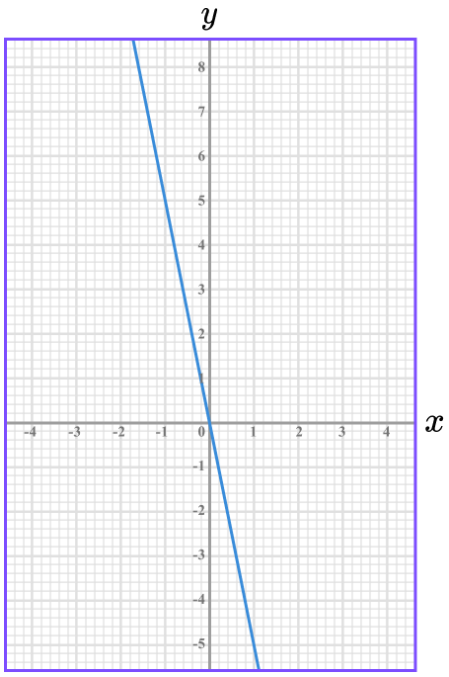


6)

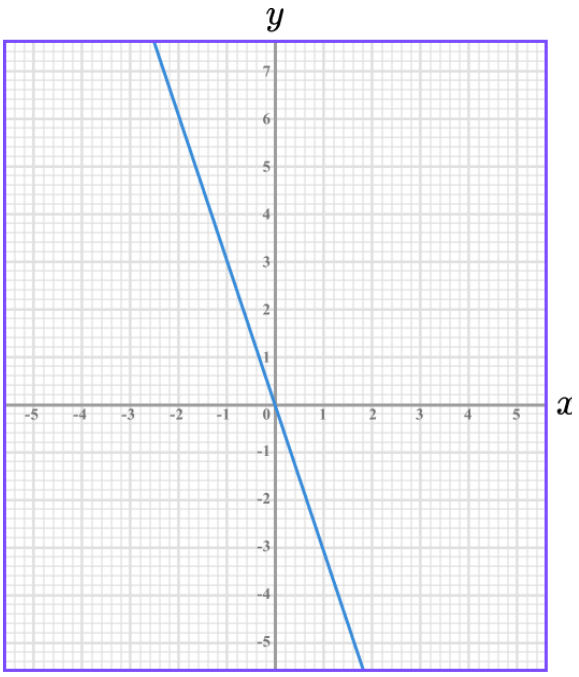


Equation of a Line - Worksheet

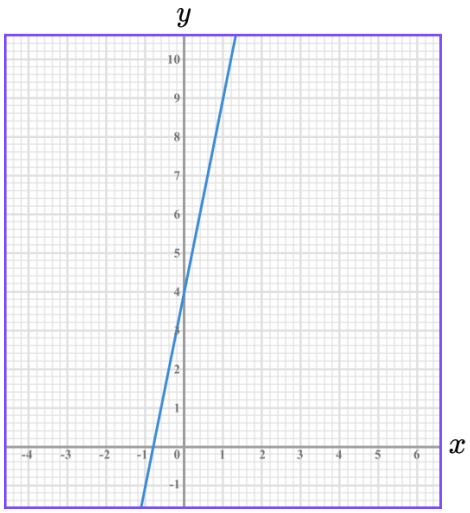
7)



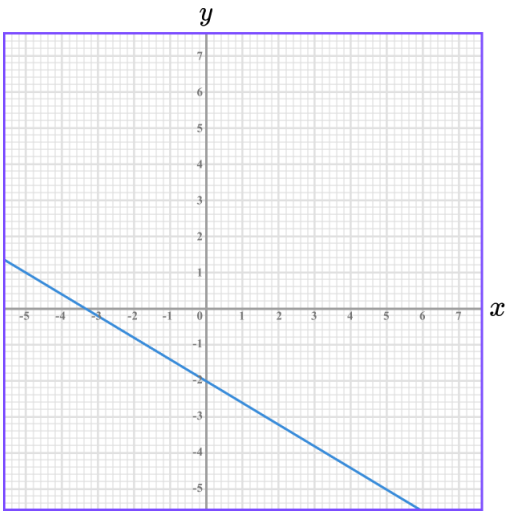
8)



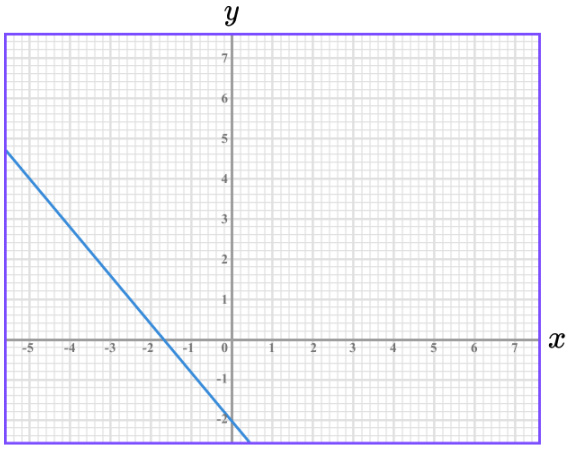
9)



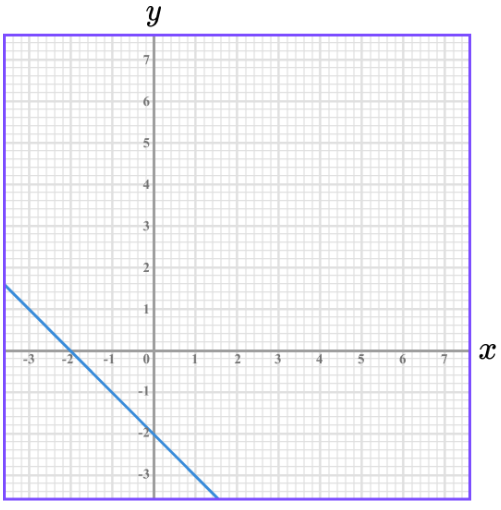
10)



11)



12)



Equation of a Line - Worksheet

Applied

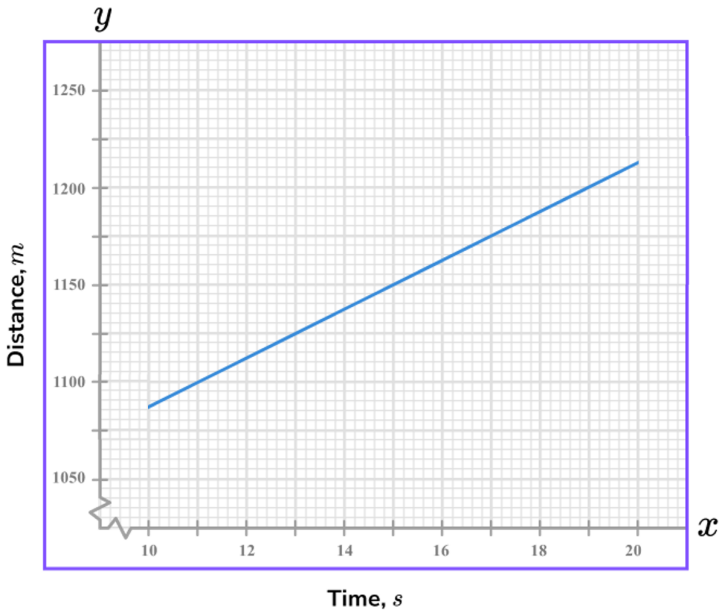
1) A line has a gradient, -1, and a y – intercept at $(0, 5)$.
Write the equation of this line in the form $y = mx + c$.

2) A line has a gradient, 2, and passes through the point $(4\,,\ 11)$.

(a) Find the y – intercept of this line.

(b) Hence, write the equation of this line in the form $y = mx + c$.

3) The graph below is a distance time graph for a train, over 10 seconds, during a journey.



(a) Find the equation of the straight-line graph. Be careful when determining your y – intercept.

(b) What does the gradient of the line represent in terms of this train? Explain your answer.

4) **(a)** A line has a gradient, $\frac{4}{3}$, and passes through the point $(3\,,\ 6)$.
Find the y – intercept of this line.

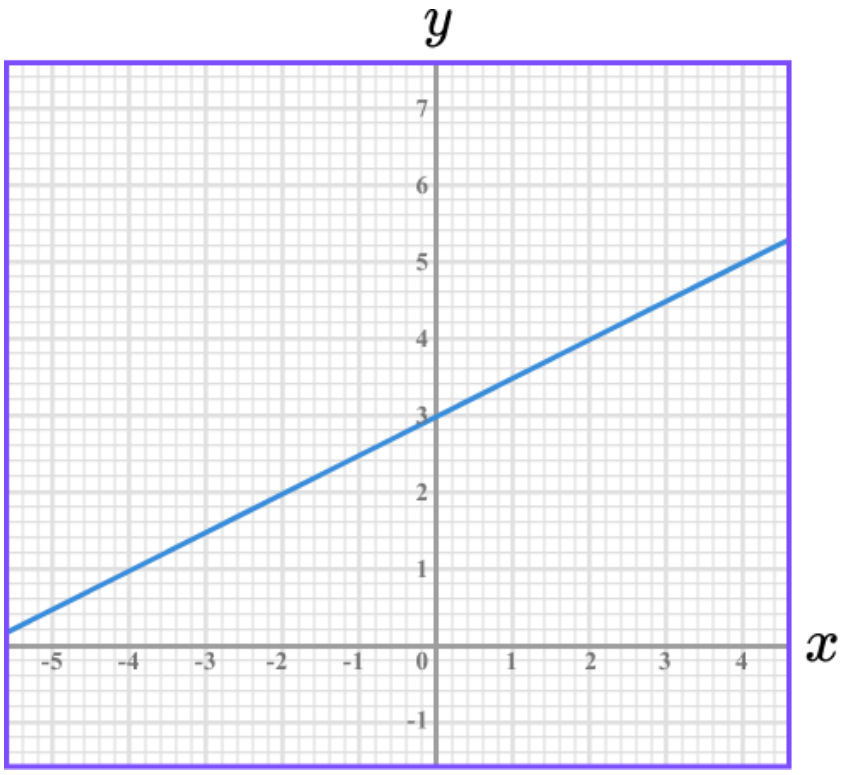
(b) Hence, write the equation of this line in the form $ay + bx + c = 0$.

5) **(a)** Write down the equation of the line that passes through the points $(-3\,,\ 7)$ and $(-6\,,\ 11)$.

(b) Write the equation of this line in the form $ay + bx + c = 0$.

Equation of a Line - Exam Questions

1) Find the equation of the line shown on the graph below.



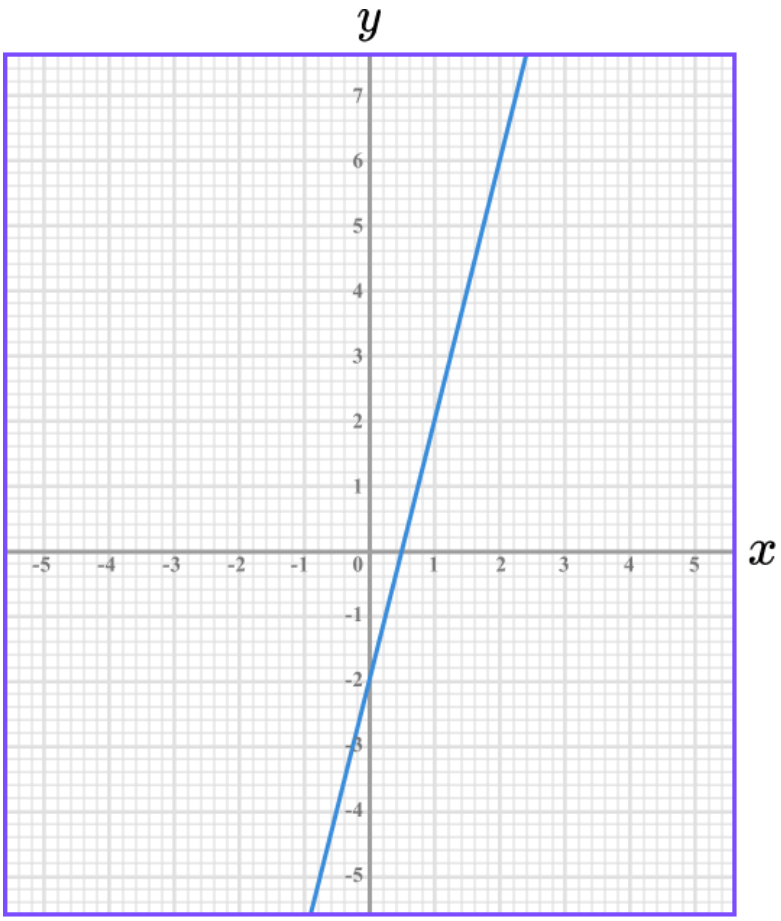
Give your answer in the form $y = mx + c$.

.....

(3 marks)

Equation of a Line - Exam Questions

2) **(a)** A straight line is shown below.



Find the equation of the line.

.....

(3)

(b) Give the y coordinate of the point on the line with an x coordinate of 2.

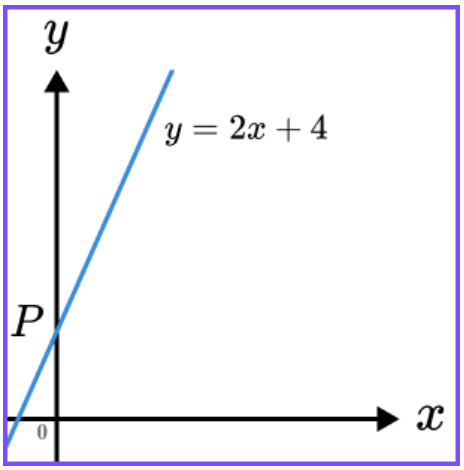
.....

(1)

(4 marks)

Equation of a Line - Exam Questions

3)



The line $y = 2x + 4$ crosses the y axis at P.

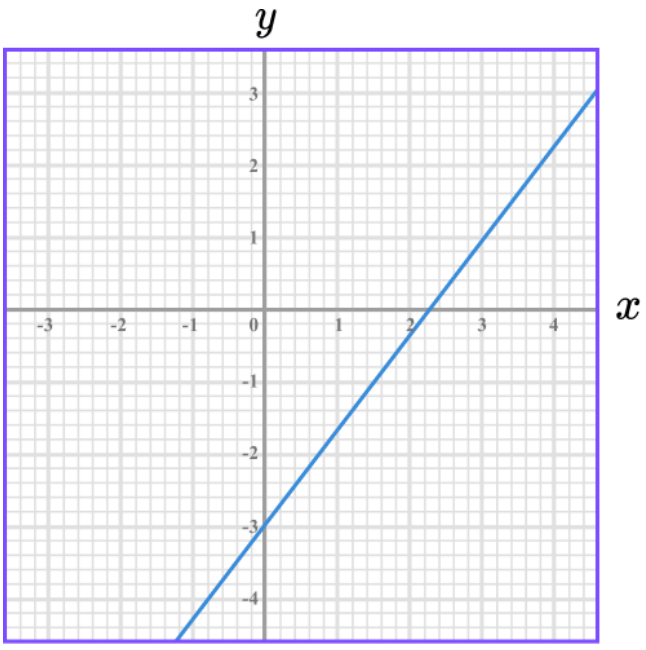
What is the value of y at P?

.....

(1 mark)

---

4)

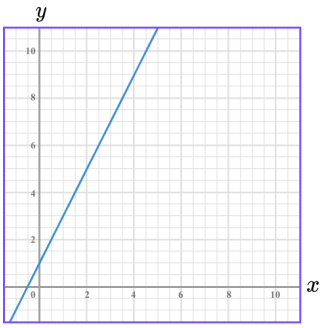
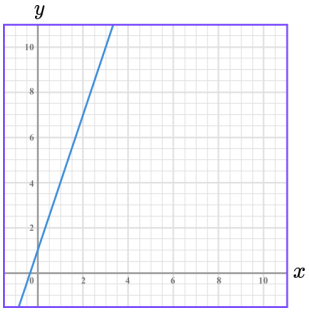
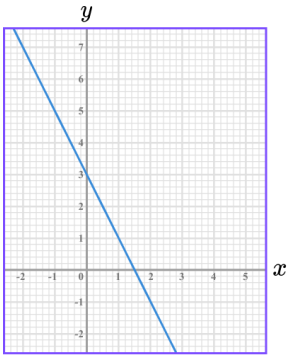
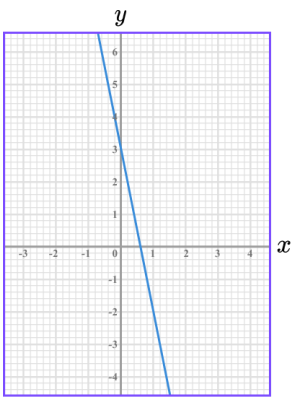


Write the equation of the line in the form $ay + bx + c = 0$.

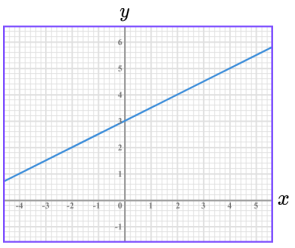
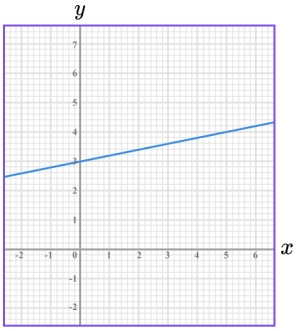
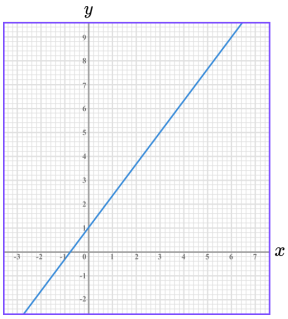
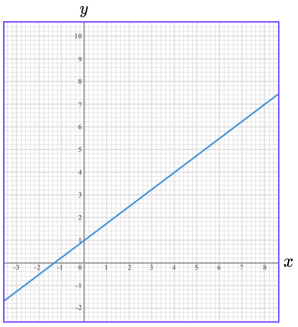
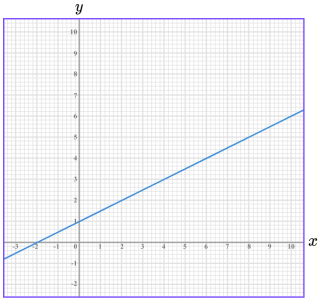
.....

(4 marks)

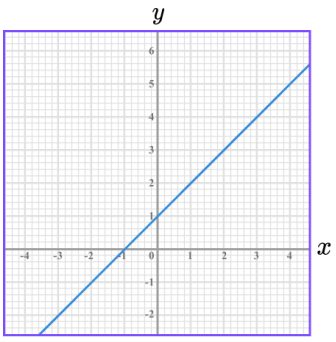
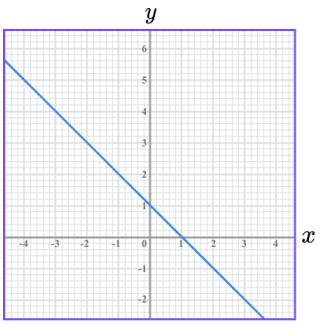
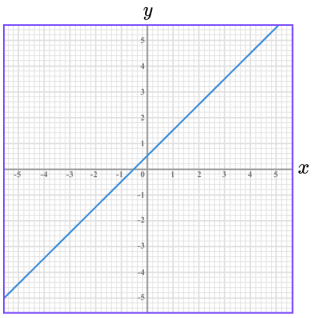
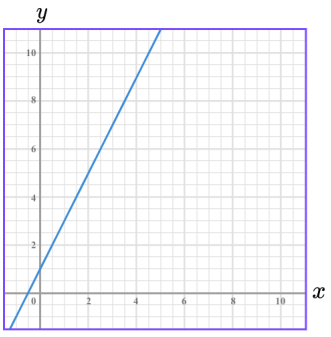
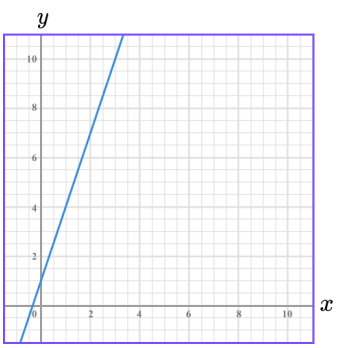
Equation of a Line - Answers

	Question	Answer
	Skill Questions	
Group A	Calculate the gradient of the following lines: **1)**  **2)**  **3)**  **4)** 	**1)** 2 **2)** 3 **3)** -2 **4)** -5

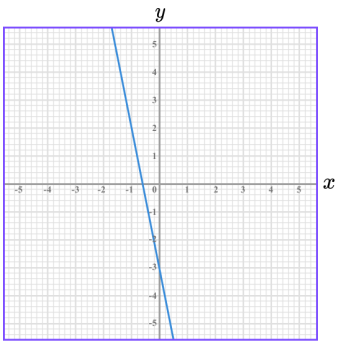
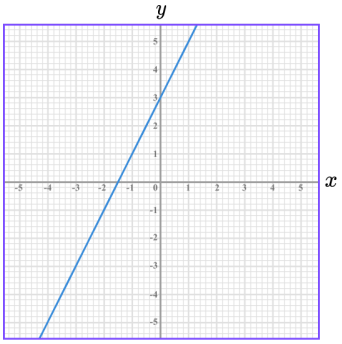
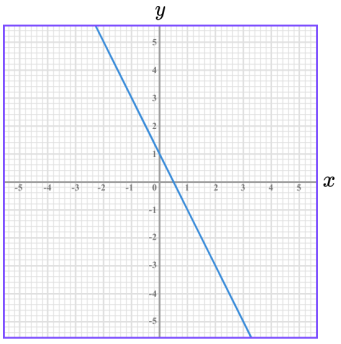
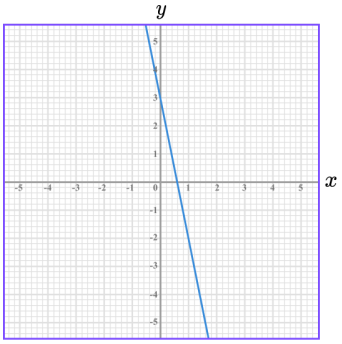
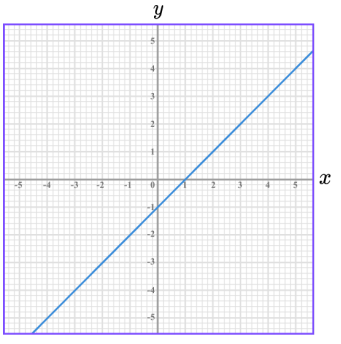
Equation of a Line - Answers

Group A contd	5) 	5) $\frac{1}{2}$
	6) 	6) $\frac{1}{5}$
	7) 	7) $\frac{4}{3}$
	8) 	8) $\frac{3}{4}$
	9) 	9) $\frac{1}{2}$

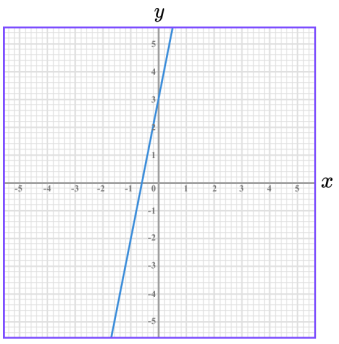
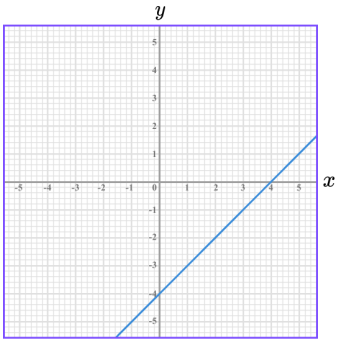
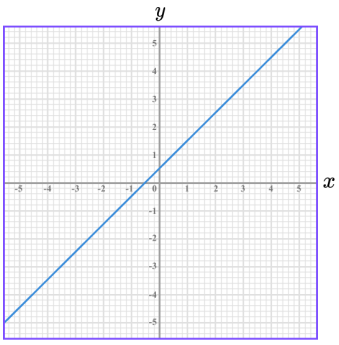
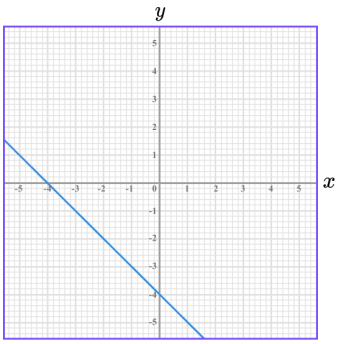
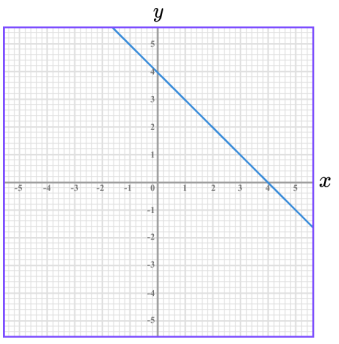
Equation of a Line - Answers

Group A contd	**10)**  **11)**  **12)** 	**10)** 1 **11)** -1 **12)** 1
Group B	Identify the y-intercept of the following lines: **1)**  **2)** 	**1)** 1 **2)** 1

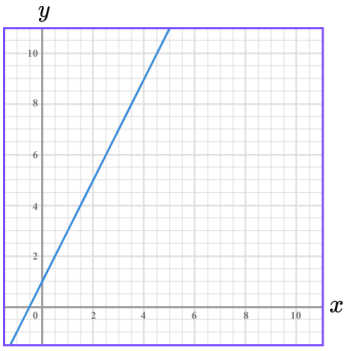
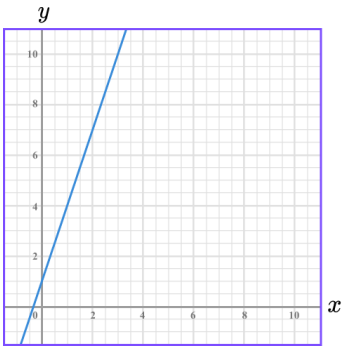
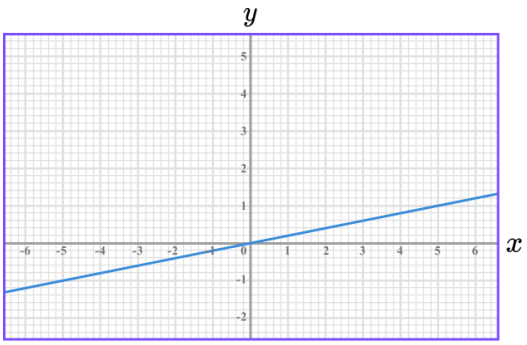
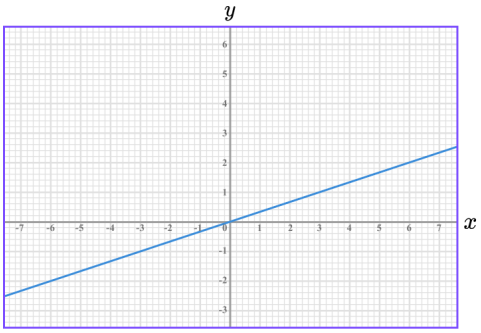
Equation of a Line - Answers

Group B contd	**3)** 	**3)** -3
	4) 	**4)** 3
	5) 	**5)** 1
	6) 	**6)** 3
	7) 	**7)** -1

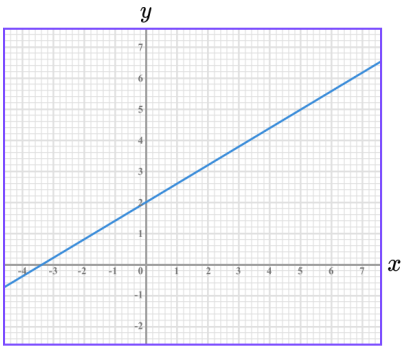
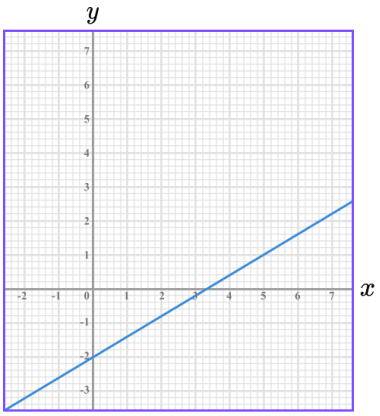
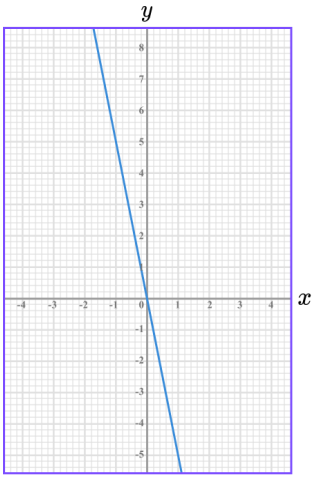
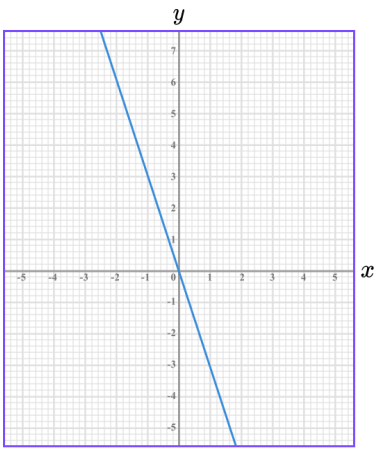
Equation of a Line - Answers

Group B contd	**8)** 	**8)** 3
	9) 	**9)** -4
	10) 	**10)** $\frac{1}{2}$
	11) 	**11)** -4
	12) 	**12)** 4

Equation of a Line - Answers

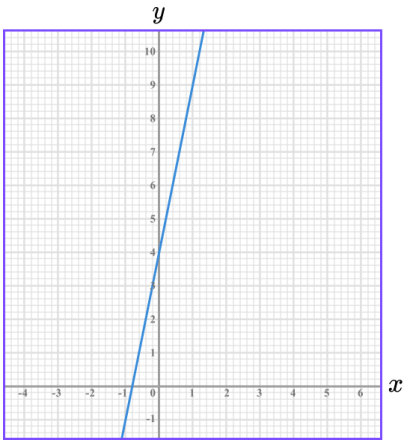
Group C	Write down the equation of the lines below in the form $y = mx + c$: **1)**  **2)**  **3)**  **4)**  	**1)** $y = 2x + 1$ **2)** $y = 3x + 1$ **3)** $y = \frac{1}{5}x$ **4)** $y = \frac{1}{3}x$

Equation of a Line - Answers

Group C contd	**5)** 	**5)** $y = \frac{3}{5}x + 2$
	6) 	**6)** $y = \frac{3}{5}x - 2$
	7) 	**7)** $y = -5x$
	8) 	**8)** $y = -3x$

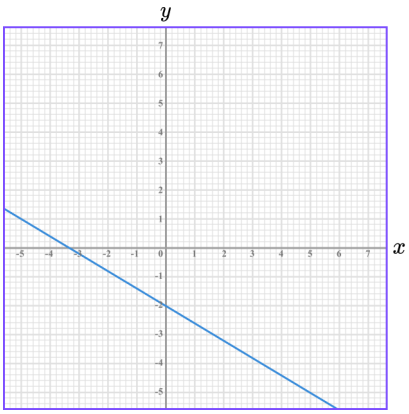
Equation of a Line - Answers

9)



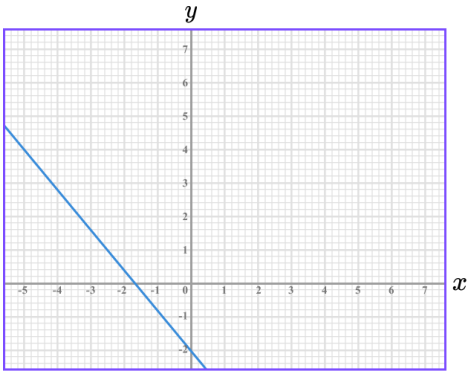
9) $y = 5x + 4$

10)



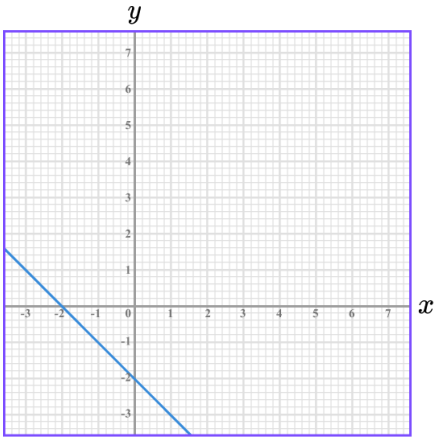
10) $y = -\frac{3}{5}x - 2$

11)



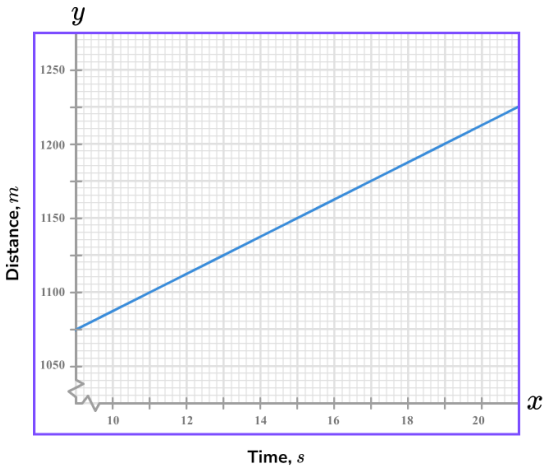
11) $y = -\frac{6}{5}x - 2$

12)



12) $y = -x - 2$

Equation of a Line - Answers

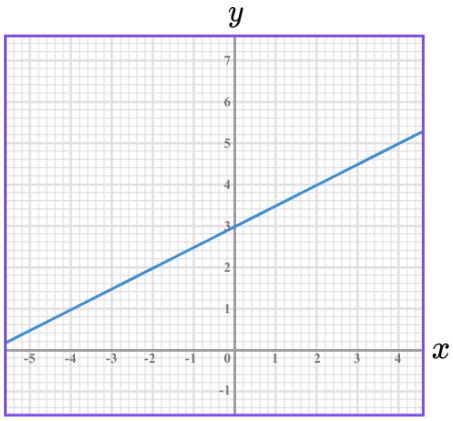
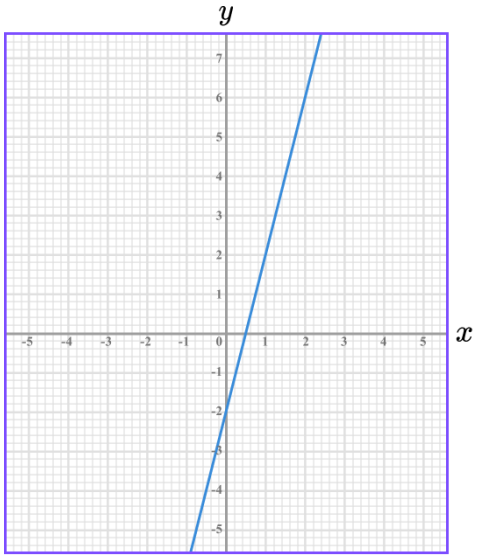
	Question	Answer
	Applied Questions	
1)	A line has a gradient, -1, and a y – intercept at $(0, 5)$. Write the equation of this line in the form $y = mx + c$.	$y = -x + 5$
2)	A line has a gradient, 2, and passes through the point $(4\,,\ 11)$. **a)** Find the y – intercept of this line. **b)** Hence, write the equation of this line in the form $y = mx + c$.	**a)** y – intercept = 3 **b)** $y = 2x + 3$
3)	The graph below is a distance time graph for a train, over 10 seconds, during a journey.  **a)** Find the equation of the straight-line graph. Be careful when determining your y – intercept. **b)** What does the gradient of the line represent in terms of this train? Explain your answer.	**a)** $y = 12.5x + 962.5$ **b)** The gradient is the change in distance over the change in time, so it represents the speed of the train.
4)	**a)** A line has a gradient, $\frac{4}{3}$, and passes through the point $(3\,,\ 6)$. Find the y – intercept of this line.	**a)** y – intercept = 2

	b) Hence, write the equation of this line in the form $ay + bx + c = 0$.	**b)** $3y - 4x - 6 = 0$

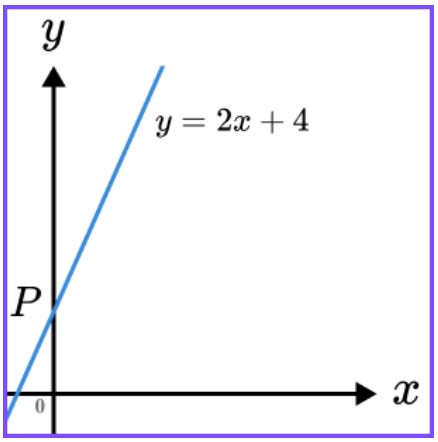
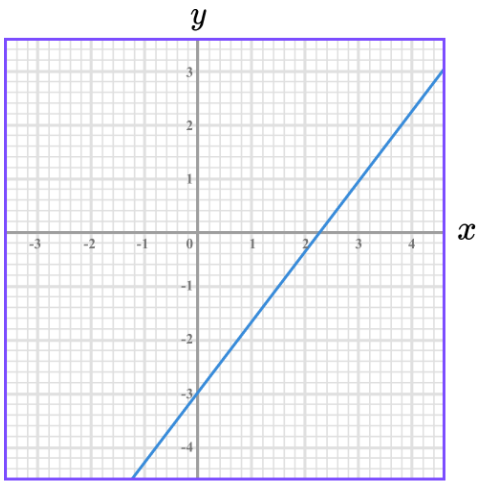
Equation of a Line - Answers

5)	**a)** Write down the equation of the line that passes through the points $(-3, 7)$ and $(-6, 11)$.	**a)** $y = -\frac{4}{3}x + 3$
	b) Write the equation of this line in the form $ay + bx + c = 0$.	**b)** $3y + 4x - 9 = 0$

Equation of a Line - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	Find the equation of the line shown on the graph below.  Give your answer in the form $y = mx + c$.	Gradient identified as $\frac{1}{2}$ y – intercept identified as 3 $y = \frac{1}{2}x + 3$	**(1)** **(1)** **(1)**
2) (a)	A straight line is shown below.  Find the equation of the line.	**(a)** Gradient identified as 4 y – intercept identified as -2 $y = 4x - 2$	**(1)** **(1)** **(1)**
(b)	Give the y coordinate of the point on the line with an x coordinate of 2.	**(b)** 6	**(1)**

Equation of a Line - Mark Scheme

3)	 The line $y = 2x + 4$ crosses the y axis at P. What is the value of y at P?	$y = 4$ Accept embedded value of y: $P(0, 4)$	**(1)**
4)	 Write the equation of the line in the form $ay + bx + c = 0$.	Gradient identified as $\frac{4}{3}$ y – intercept identified as -3 $y = \frac{4}{3}x - 3$ $3y - 4x + 9 = 0$	**(1)** **(1)** **(1)** **(1)**