

# GCSE Maths: Solving equations using graphs, and interpreting solutions (Foundation): worksheet

GCSE Maths - Linear Equations - Foundation - Lesson 9.9

Name: \_\_\_\_\_

Date: \_\_\_\_\_

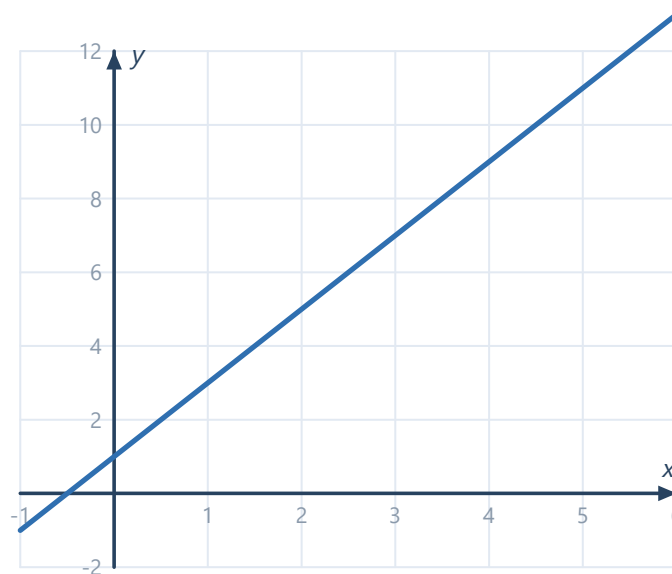
Score: \_\_\_\_\_

12 questions. Write your answers in the spaces. Answers and step-by-step help are free at [websink.site/gcse/maths/ch09-linear-equations/foundation/solving-equations-using-graphs-and-interpreting-solutions/](https://websink.site/gcse/maths/ch09-linear-equations/foundation/solving-equations-using-graphs-and-interpreting-solutions/)

## Exercise 9I Graphs and interpreting solutions

Non-calculator

- 1 This is the graph of  $y = 2x + 1$ . Use the graph to solve each equation. For (f) give your answer to 1 decimal place.



(a)  $2x + 1 = 7$

Answer: \_\_\_\_\_

(b)  $2x + 1 = 11$

Answer: \_\_\_\_\_

(c)  $2x + 1 = 3$

Answer: \_\_\_\_\_

(d)  $2x + 1 = 5$

Answer: \_\_\_\_\_

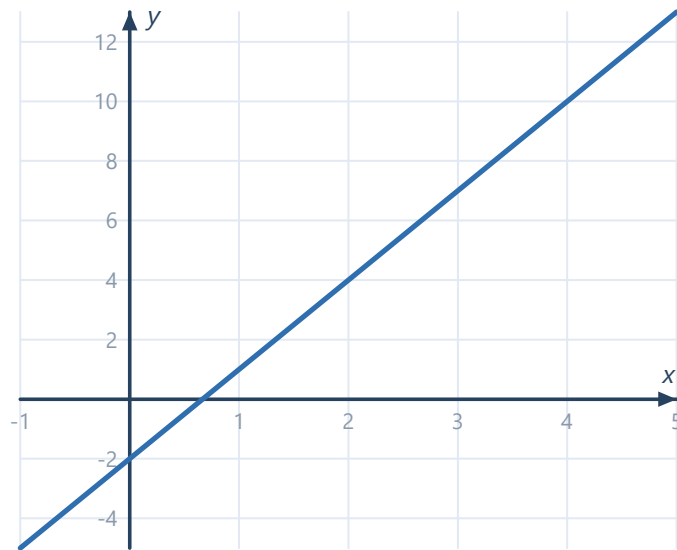
(e)  $2x + 1 = 9$

Answer: \_\_\_\_\_

(f)  $2x + 1 = 8$

Answer: \_\_\_\_\_

- 2 This is the graph of  $y = 3x - 2$ . Use the graph to solve each equation.



**(a)**  $3x - 2 = 7$

Answer: .....

**(b)**  $3x - 2 = 10$

Answer: .....

**(c)**  $3x - 2 = 1$

Answer: .....

**(d)**  $3x - 2 = -2$

Answer: .....

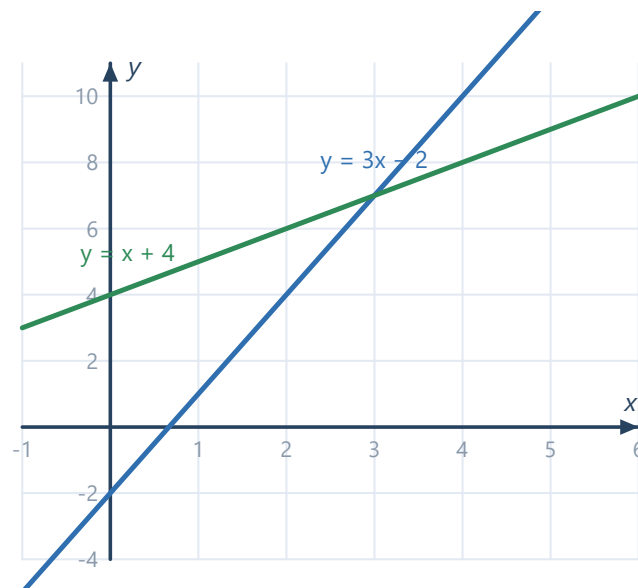
**(e)**  $3x - 2 = 4$

Answer: .....

**(f)**  $3x - 2 = -5$

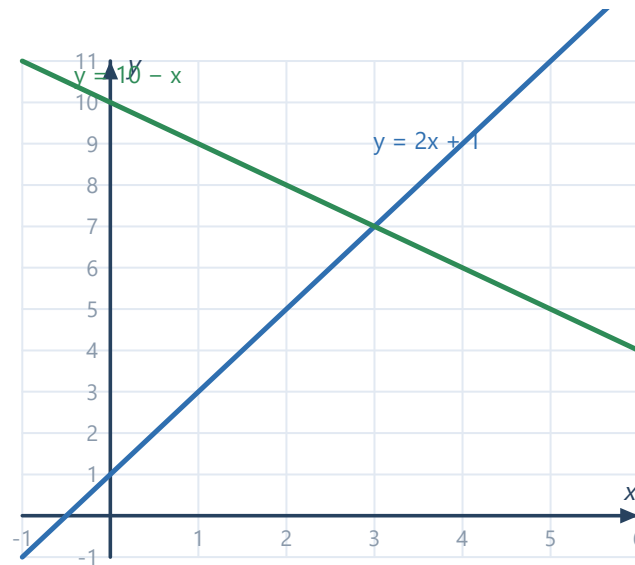
Answer: .....

**3** The graphs of  $y = 3x - 2$  and  $y = x + 4$  are drawn. Use the graph to solve  $3x - 2 = x + 4$ .



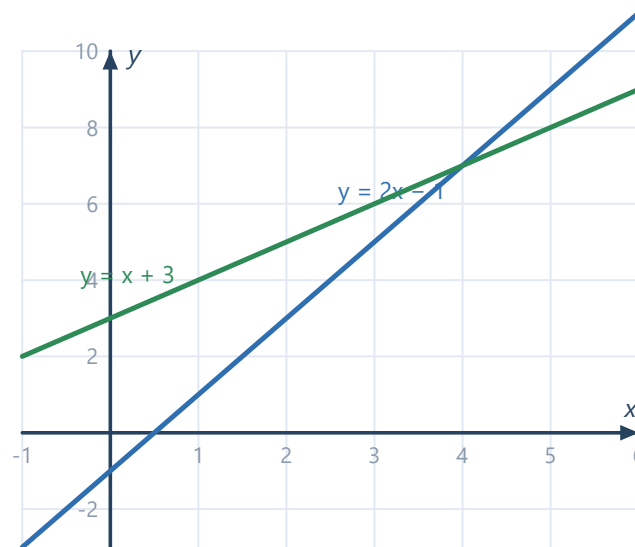
Answer: .....

- 4 The graphs of  $y = 2x + 1$  and  $y = 10 - x$  are drawn. Use the graph to solve  $2x + 1 = 10 - x$ .



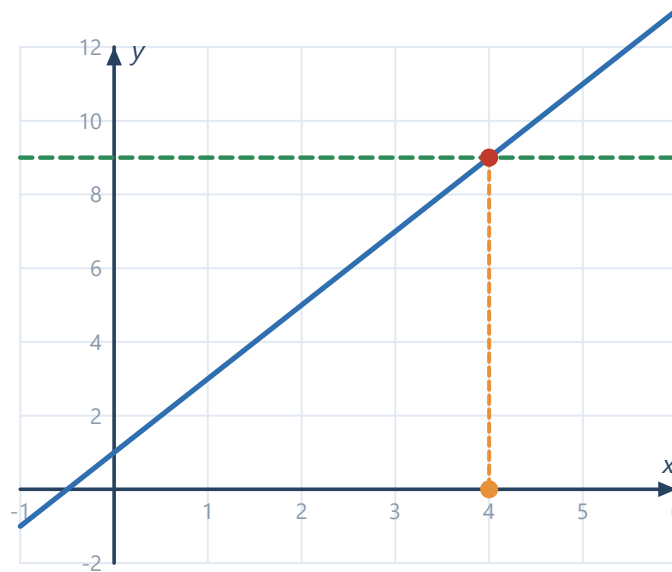
Answer: .....

- 5 Use the graph to solve  $2x - 1 = x + 3$ , then check your answer using algebra.



Answer: .....

- 6 Ava uses the graph of  $y = 2x + 1$  to solve  $2x + 1 = 9$ . She says the answer is  $x = 9$  because the horizontal line goes through 9. Explain her mistake and give the correct solution.



Answer: .....

- 7** Tickets for a play cost £6 each. Ben says he spent exactly £50 on tickets. Could he be right? Explain.

Answer: .....

- 8** Dee thinks of a whole number, multiplies it by 4 and adds 3. She gets 20. Could she be telling the truth? Explain.

Answer: .....

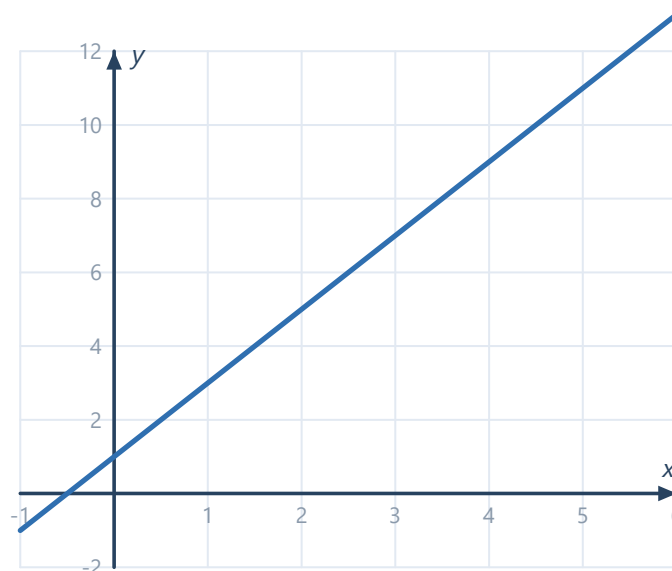
- 9** An internet plan costs £15 a month plus £4 for every extra gigabyte. A bill is £51. How many extra gigabytes were used? Is your answer sensible?

Answer: .....

- 10** Ravi says that the number of cups of flour  $x$  in a recipe satisfies  $3x + 8 = 2$ . Solve the equation. Explain why the answer cannot be right for the recipe.

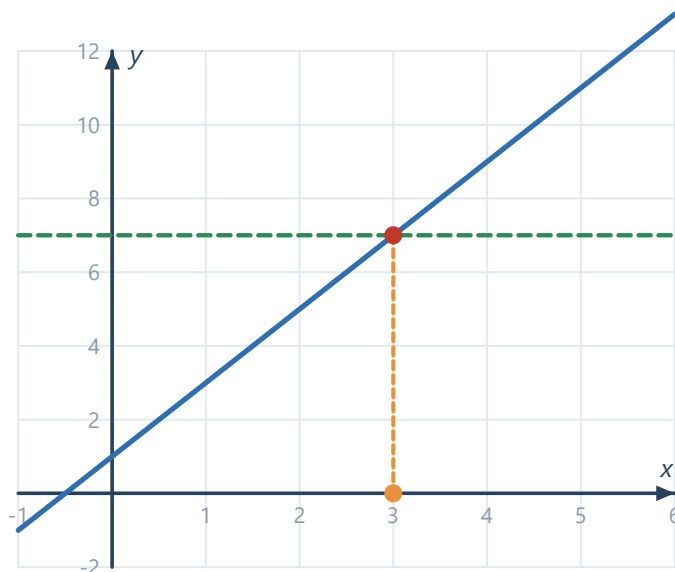
Answer: .....

- 11** Use the graph of  $y = 2x + 1$  (drawn for  $-1 \leq x \leq 6$ ) to estimate the solution of  $2x + 1 = 8$ .



Answer: .....

- 12** Solve  $2x + 1 = 7$  using algebra, and check that it agrees with the point where  $y = 7$  meets the line  $y = 2x + 1$  in the graph.



Answer:

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