

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

GCSE Maths - Linear Equations - Higher - Lesson 9.9

Name: _____

Date: _____

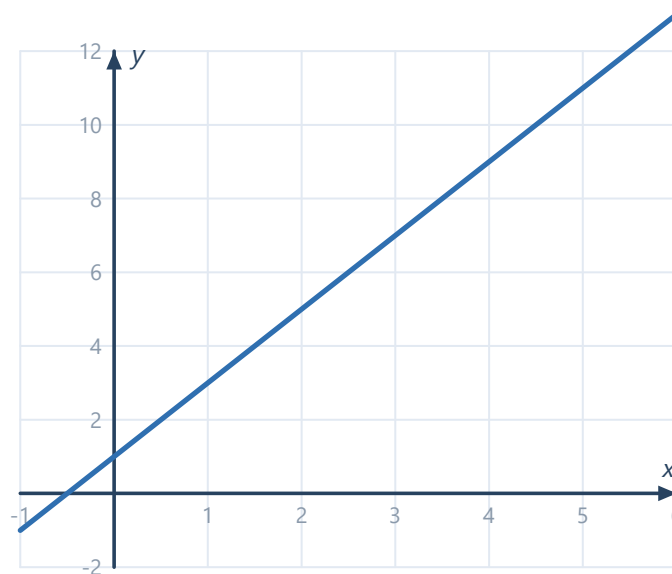
Score: _____

11 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch09-linear-equations/higher/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: _____

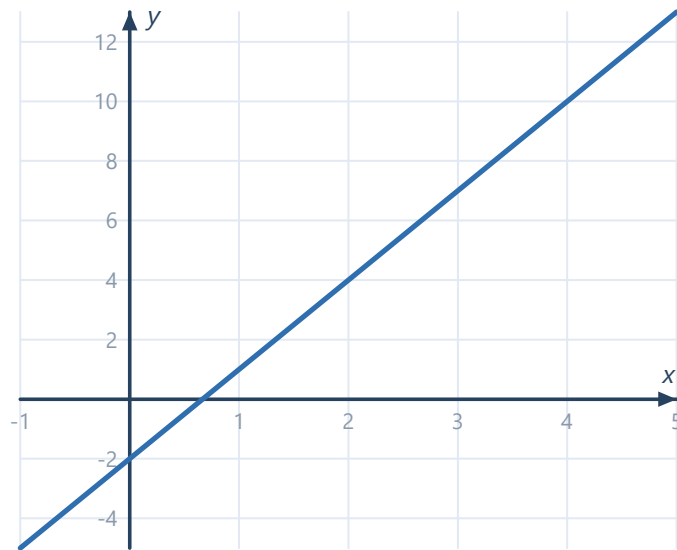
(e) $2x + 1 = 9$

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:

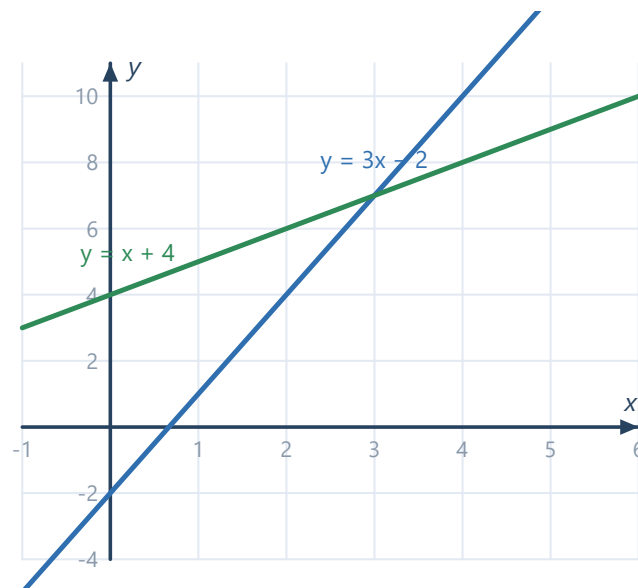
(e) $3x - 2 = 4$

Answer:

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

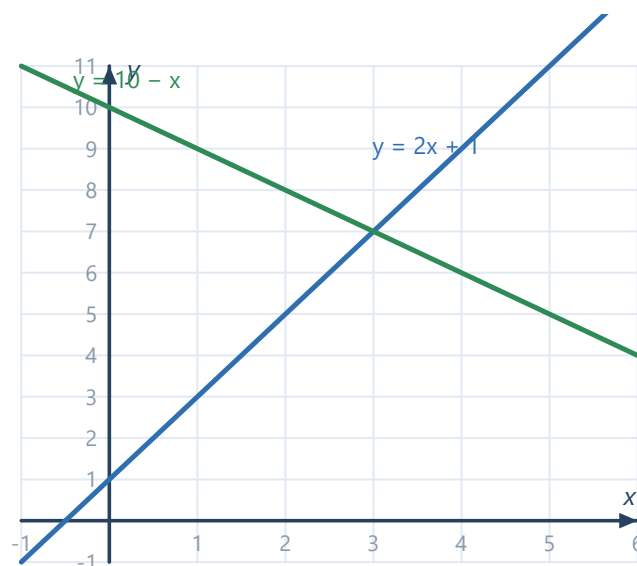
Answer:

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



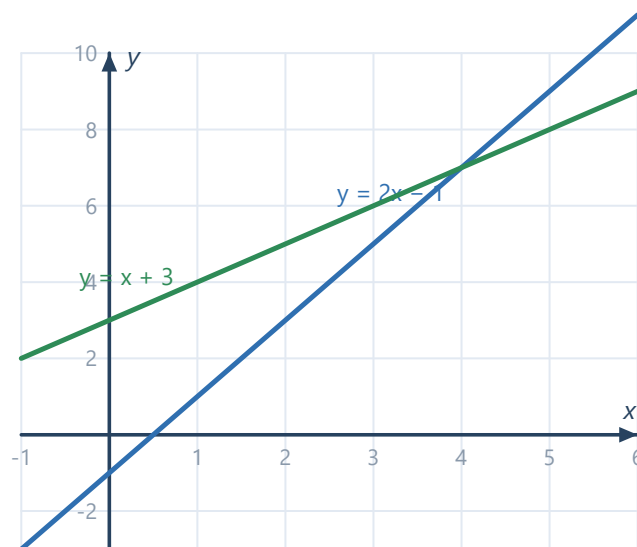
Answer:

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



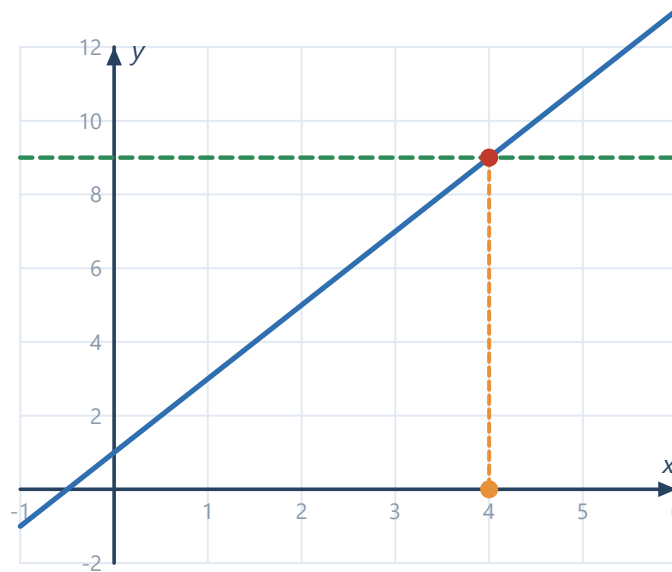
Answer:

- 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** Find the coordinates of the point where the lines $y = 4x - 3$ and $y = 2x + 5$ cross.

Answer: