

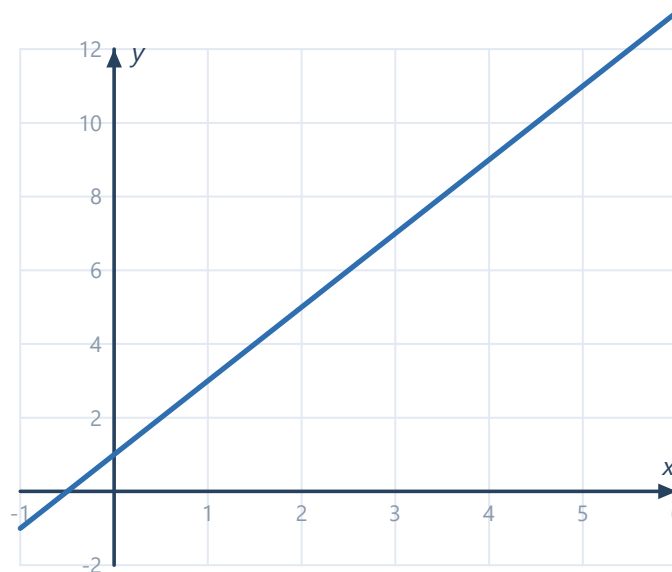
GCSE Maths: Solving equations using graphs, and interpreting solutions (Higher): answers

GCSE Maths - Linear Equations - Higher - Lesson 9.9

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question 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: $x = 3$

(b) $2x + 1 = 11$

Answer: $x = 5$

(c) $2x + 1 = 3$

Answer: $x = 1$

(d) $2x + 1 = 5$

Answer: $x = 2$

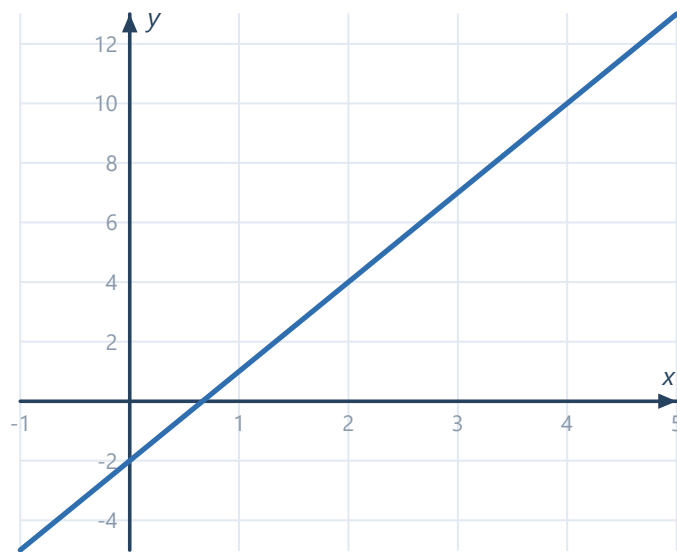
(e) $2x + 1 = 9$

Answer: $x = 4$

(f) $2x + 1 = 8$

Answer: $x = 3.5$

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



(a) $3x - 2 = 7$

Answer: $x = 3$

(b) $3x - 2 = 10$

Answer: $x = 4$

(c) $3x - 2 = 1$

Answer: $x = 1$

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

Answer: $x = 0$

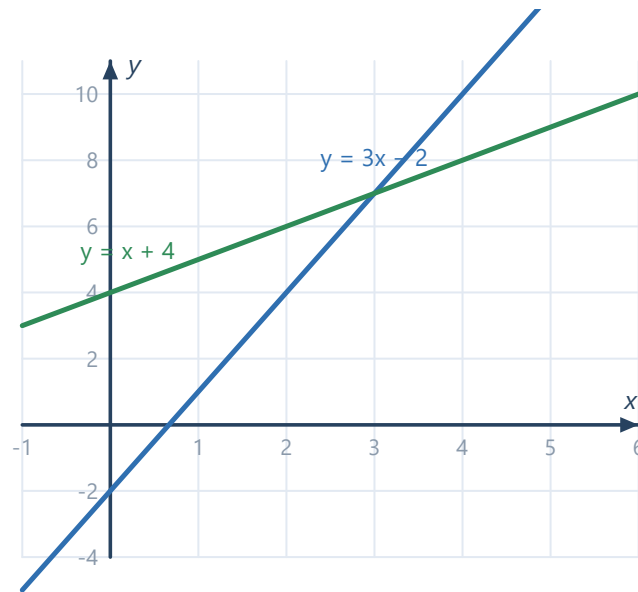
(e) $3x - 2 = 4$

Answer: $x = 2$

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

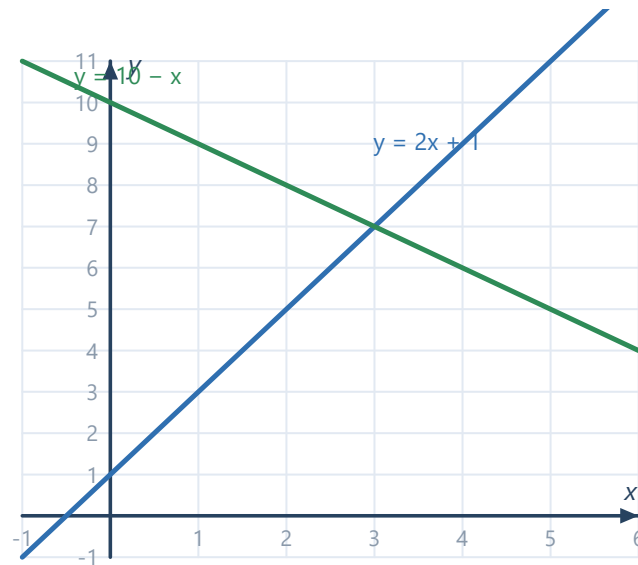
Answer: $x = -1$

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



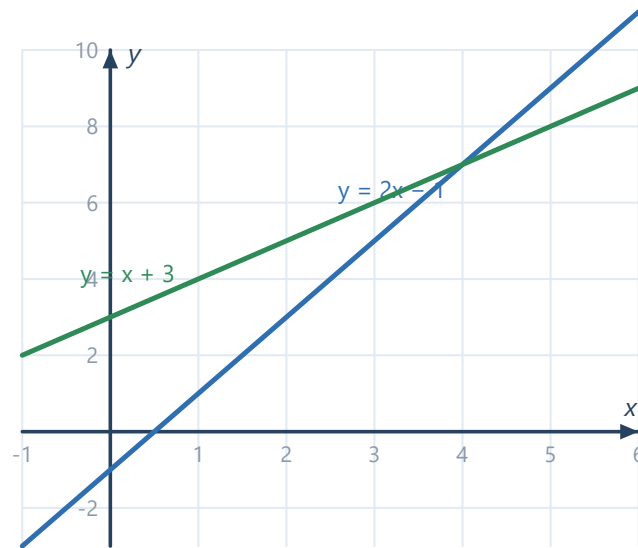
Answer: $x = 3$

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



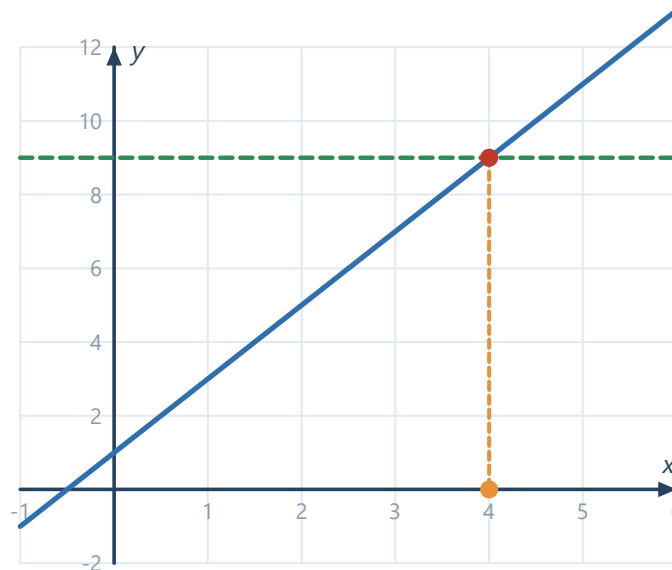
Answer: $x = 3$

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



Answer: $x = 4$

- 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: 9 is the y -value. Reading across to the x -axis gives $x = 4$.

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

Answer: No: $x = \frac{25}{3}$ is not a whole number.

- 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: No: $x = 4.25$ is not a whole number.

- 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: 9 gigabytes

- 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: $x = -2$, which is impossible for a number of cups.

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

Answer: (4, 13)