

GCSE Maths: Two-step equations (Higher): answers

GCSE Maths - Linear Equations - Higher - Lesson 9.2

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/two-step-equations/

Exercise 9B Two-step equations Non-calculator

1 Solve these two-step equations. In each, **add or subtract first**.

(a) $2x + 3 = 11$

Answer: $x = 4$

(b) $3x + 1 = 16$

Answer: $x = 5$

(c) $5x + 4 = 24$

Answer: $x = 4$

(d) $4x + 7 = 31$

Answer: $x = 6$

(e) $2x + 9 = 21$

Answer: $x = 6$

(f) $6x + 2 = 20$

Answer: $x = 3$

2 Solve these equations. Each has a subtraction.

(a) $2x - 3 = 9$

Answer: $x = 6$

(b) $3x - 5 = 13$

Answer: $x = 6$

(c) $5x - 1 = 24$

Answer: $x = 5$

(d) $4x - 9 = 15$

Answer: $x = 6$

(e) $7x - 2 = 40$

Answer: $x = 6$

(f) $10x - 6 = 34$

Answer: $x = 4$

3 Solve these equations. Each has a fraction.

(a) $\frac{x}{2} + 3 = 8$

Answer: $x = 10$

(b) $\frac{x}{3} + 1 = 5$

Answer: $x = 12$

(c) $\frac{x}{4} - 2 = 3$

Answer: $x = 20$

(d) $\frac{x}{5} + 4 = 9$

Answer: $x = 25$

(e) $\frac{x}{6} - 1 = 2$

Answer: $x = 18$

(f) $\frac{x}{10} + 7 = 10$

Answer: $x = 30$

4 Solve these equations. The unknown is on the right-hand side.

(a) $13 = 2x + 3$

Answer: $x = 5$

(b) $22 = 4x + 2$

Answer: $x = 5$

(c) $17 = 3x - 4$

Answer: $x = 7$

(d) $30 = 5x + 5$

Answer: $x = 5$

5 Write the missing numbers in the working for $6x + 4 = 40$.

(a) $6x + 4 = 40$

Answer: $6x = 36$

(b) $6x = 36$

Answer: $x = 6$

6 Solve $8x + 5 = 93$

Answer: $x = 11$

7 Solve $\frac{x}{7} - 3 = 4$

Answer: $x = 49$

8 Mia thinks of a number. She multiplies it by 4 and then adds 3. The answer is 35. What was her number?

Answer: 8

9 Three cinema tickets and a booking fee of £4 cost £31 altogether. The booking fee is charged once. Work out the cost of one ticket.

Answer: £9

10 Jade has £12. She saves £5 each week. After how many weeks will she have £62?

Answer: 10 weeks

11 Ali and Beth each solve an equation. Ali solves $4x + 3 = 19$. Beth solves $3x - 1 = 11$. Who gets the bigger answer, and by how much?

Answer: They get the same answer (both 4); the difference is 0.

12 Zoe says: "To solve $3x + 5 = 23$ I divide by 3 first." Show that her method needs fractions, and explain why subtracting 5 first is easier.

Answer: Dividing first gives $x + \frac{5}{3} = \frac{23}{3}$. Subtracting 5 first gives $3x = 18$.

13 Omar has already read 18 pages of a 90-page book. He wants to finish it in 6 more days, reading the same number of pages each day. How many pages must he read each day?

Answer: 12 pages