GCSE Maths: Negative and fractional solutions, and checking (Foundation): answers

GCSE Maths - Linear Equations - Foundation - Lesson 9.3

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/foundation/negative-and-fractional-solutions-and-checking/**

Exercise 9C Negative and fractional solutions Non-calculator

1 Solve these equations. Each solution is a **negative** number.

(a) $x + 9 = 4$

Answer: $x = -5$

(b) $x + 12 = 3$

Answer: $x = -9$

(c) $2x + 10 = 4$

Answer: $x = -3$

(d) $3x + 14 = 5$

Answer: $x = -3$

(e) $x - 3 = -7$

Answer: $x = -4$

(f) $4x - 1 = -13$

Answer: $x = -3$

2 Solve these equations. Give each answer as a fraction in its simplest form.

(a) $2x = 5$

Answer: $x = \frac{5}{2}$

(b) $3x = 4$

Answer: $x = \frac{4}{3}$

(c) $4x = 6$

Answer: $x = \frac{3}{2}$

(d) $5x = 2$

Answer: $x = \frac{2}{5}$

(e) $6x = 9$

Answer: $x = \frac{3}{2}$

(f) $2x + 1 = 6$

Answer: $x = \frac{5}{2}$

3 Solve these equations. Give each answer as a **mixed number**.

(a) $3x = 7$

Answer: $x = 2\frac{1}{3}$

(b) $4x + 1 = 10$

Answer: $x = 2\frac{1}{4}$

(c) $5x - 2 = 14$

Answer: $x = 3\frac{1}{5}$

(d) $2x + 3 = 12$

Answer: $x = 4\frac{1}{2}$

4 Solve these equations. Give each answer as a **decimal**.

(a) $2x + 1 = 6$

Answer: $x = 2.5$

(b) $4x = 1$

Answer: $x = 0.25$

(c) $5x + 2 = 3$

Answer: $x = 0.2$

(d) $8x - 3 = 1$

Answer: $x = 0.5$

5 Solve these equations. The x term is negative.

(a) $5 - x = 2$

Answer: $x = 3$

(b) $10 - 2x = 4$

Answer: $x = 3$

(c) $3 - 2x = 11$

Answer: $x = -4$

(d) $7 - 3x = -8$

Answer: $x = 5$

(e) $1 - x = 6$

Answer: $x = -5$

(f) $12 - 5x = 2$

Answer: $x = 2$

6 Decide whether each statement is true or false by substituting the value for x. The value to test is $x = -2$.

(a) $3x + 8 = 2$

Answer: True

(b) $2x - 1 = 3$

Answer: False

(c) $5x + 4 = -6$

Answer: True

(d) $\frac{x}{2} + 4 = 3$

Answer: True

7 Solve $6x + 7 = -17$

Answer: $x = -4$

8 Solve $9 = 4x + 21$

Answer: $x = -3$

9 A number is multiplied by 3 and then 11 is added. The answer is 2. Find the number.

Answer: -3

10 At 6 pm the temperature is 5°C. It falls by 3°C every hour. After how many hours is the temperature −7°C?

Answer: 4 hours

11 Five identical books cost £12 altogether. Work out the cost of one book.

Answer: £2.40

12 Dev solves $x + 7 = 2$ and writes $x = 9$. Substitute his answer to show that it is wrong, then find the correct answer.

Answer: $9 + 7 = 16$, not 2. The correct answer is $x = -5$.

13 Without solving the equation, explain why $4x + 8 = 3$ cannot have a positive solution. Then solve it.

Answer: If x were positive, $4x + 8$ would be bigger than 8, not 3. $x = -\frac{5}{4}$

14 Four child tickets for a theme park cost £30 altogether. Work out the cost of one child ticket. Give your answer to the nearest penny.

Answer: £7.50

15 Solve these. Give each answer as a whole number.

(a) $x - 9 = -4$

Answer: $x = 5$

(b) $2x = -8$

Answer: $x = -4$

(c) $x + 6 = 1$

Answer: $x = -5$

(d) $3x = -15$

Answer: $x = -5$

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