

Multi-step equations

Solve each equation. Show your working, and write the answer on the line.

Name _____ Date _____

1. $5x - 15 = 2x + 12$

x = _____

2. $4x - 6 = 3x + 6$

x = _____

3. $6x + 8 = 5x + 9$

x = _____

4. $9x - 10 = 3x + 44$

x = _____

5. $8x + 7 = x + 77$

x = _____

6. $6x + 6 = 3x + 9$

x = _____

7. $5x - 2 = 3x + 4$

x = _____

8. $9x - 7 = 2x + 70$

x = _____

9. $7x - 14 = x + 16$

x = _____

10. $3x + 14 = 2x + 23$

x = _____

Multi-step equations: answer key

Each equation worked one step a line. What was done to both sides is beside each step.

1. $5x - 15 = 2x + 12$

$3x - 15 = 12$ Subtract $2x$ from both sides.

$3x = 27$ Add 15 to both sides.

$x = 9$ Divide both sides by 3.

Check: $5(9) - 15 = 30$ and $2(9) + 12 = 30$

2. $4x - 6 = 3x + 6$

$x - 6 = 6$ Subtract $3x$ from both sides.

$x = 12$ Add 6 to both sides.

Check: $4(12) - 6 = 42$ and $3(12) + 6 = 42$

3. $6x + 8 = 5x + 9$

$x + 8 = 9$ Subtract $5x$ from both sides.

$x = 1$ Subtract 8 from both sides.

Check: $6(1) + 8 = 14$ and $5(1) + 9 = 14$

4. $9x - 10 = 3x + 44$

$6x - 10 = 44$ Subtract $3x$ from both sides.

$6x = 54$ Add 10 to both sides.

$x = 9$ Divide both sides by 6.

Check: $9(9) - 10 = 71$ and $3(9) + 44 = 71$

5. $8x + 7 = x + 77$

$7x + 7 = 77$ Subtract x from both sides.

$7x = 70$ Subtract 7 from both sides.

$x = 10$ Divide both sides by 7.

Check: $8(10) + 7 = 87$ and $10 + 77 = 87$

6. $6x + 6 = 3x + 9$

$3x + 6 = 9$ Subtract $3x$ from both sides.

$3x = 3$ Subtract 6 from both sides.

$x = 1$ Divide both sides by 3.

Check: $6(1) + 6 = 12$ and $3(1) + 9 = 12$

7. $5x - 2 = 3x + 4$

$2x - 2 = 4$ Subtract $3x$ from both sides.

$2x = 6$ Add 2 to both sides.

$x = 3$ Divide both sides by 2.

Check: $5(3) - 2 = 13$ and $3(3) + 4 = 13$

8. $9x - 7 = 2x + 70$

$7x - 7 = 70$ Subtract $2x$ from both sides.

$7x = 77$ Add 7 to both sides.

$x = 11$ Divide both sides by 7.

Check: $9(11) - 7 = 92$ and $2(11) + 70 = 92$

9. $7x - 14 = x + 16$

$6x - 14 = 16$ Subtract x from both sides.

$6x = 30$ Add 14 to both sides.

$x = 5$ Divide both sides by 6.

Check: $7(5) - 14 = 21$ and $5 + 16 = 21$

10. $3x + 14 = 2x + 23$

$x + 14 = 23$ Subtract $2x$ from both sides.

$x = 9$ Subtract 14 from both sides.

Check: $3(9) + 14 = 41$ and $2(9) + 23 = 41$