

1. Inverse operations are used
2. Equation is kept balanced throughout entire process
3. Equation is solved vertically and all work shown to isolate the specified variable
4. Solution is checked through substitution

Solving Linear Equations: Variable on Both Sides**Solve each equation.**

1) $6r + 7 = 13 + 7r$

2) $13 - 4x = 1 - x$

3) $-7x - 3x + 2 = -8x - 8$

4) $-8 - x = x - 4x$

5) $-14 + 6b + 7 - 2b = 1 + 5b$

6) $n + 2 = -14 - n$

7) $n - 3n = 14 - 4n$

8) $7a - 3 = 3 + 6a$

9) $5 + 2x = 2x + 6$

10) $-10 + x + 4 - 5 = 7x - 5$

11) $-8n + 4(1 + 5n) = -6n - 14$

12) $-6n - 20 = -2n + 4(1 - 3n)$

13) $4n - 40 = -14n + 14$

14) $7(5a - 4) - 1 = 14 - 8a$

15) $-31 - 4x = -5 - 5(1 + 5x)$

16) $38 + 7k = 7k + 32$

17) $8x + 4(4x - 3) = 4(6x + 4) - 4$

18) $3(1 - 3x) = 2(-4x + 7)$

19) $4(-8x + 5) = -32x - 26$

20) $-3(x - 1) + 8(x - 3) = 6x + 7 - 5x$

Answers to Solving Linear Equations: Variable on Both Sides

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|----------------------|---------------|------------------|-------------|
| 1) $\{-6\}$ | 2) $\{4\}$ | 3) $\{5\}$ | 4) $\{4\}$ |
| 5) $\{-8\}$ | 6) $\{-8\}$ | 7) $\{7\}$ | 8) $\{6\}$ |
| 9) No solution. | 10) $\{-1\}$ | 11) $\{-1\}$ | 12) $\{3\}$ |
| 13) $\{3\}$ | 14) $\{1\}$ | 15) $\{1\}$ | 16) $\{6\}$ |
| 17) all real numbers | 18) $\{-11\}$ | 19) No solution. | 20) $\{7\}$ |