

Solving Linear Equations

Algebra 1 · Free Sample · 10 problems

Name: _____ Date: _____

Directions: Solve each equation for the variable. Show all of your work in the space provided. Check your answer by substituting it back into the original equation.

1. $x + 7 = 15$

2. $x - 9 = 4$

3. $3x = 27$

4. $x \div 5 = 6$ (write as $x/5 = 6$)

5. $2x + 5 = 17$

6. $4x - 11 = 25$

7. $5(x + 2) = 45$

8. $3x + 8 = 2x + 15$

9. $6(x - 3) = 2(x + 5)$

10. The sum of three consecutive integers is 63. Find the three integers.

Answer Key

Solving Linear Equations (Algebra 1 Sample) — with step-by-step solutions

1. $x + 7 = 15$
- Subtract 7 from both sides: $x + 7 - 7 = 15 - 7$
 - Simplify: $x = 8$
 - Check: $8 + 7 = 15$ ✓

Answer: $x = 8$

2. $x - 9 = 4$
- Add 9 to both sides: $x - 9 + 9 = 4 + 9$
 - Simplify: $x = 13$
 - Check: $13 - 9 = 4$ ✓

Answer: $x = 13$

3. $3x = 27$
- Divide both sides by 3: $3x/3 = 27/3$
 - Simplify: $x = 9$
 - Check: $3(9) = 27$ ✓

Answer: $x = 9$

4. $x/5 = 6$
- Multiply both sides by 5: $5 \cdot (x/5) = 5 \cdot 6$
 - Simplify: $x = 30$
 - Check: $30/5 = 6$ ✓

Answer: $x = 30$

5. $2x + 5 = 17$
- Subtract 5 from both sides: $2x = 12$
 - Divide both sides by 2: $x = 6$
 - Check: $2(6) + 5 = 17$ ✓

Answer: $x = 6$

6. $4x - 11 = 25$
- Add 11 to both sides: $4x = 36$
 - Divide both sides by 4: $x = 9$
 - Check: $4(9) - 11 = 25$ ✓

Answer: $x = 9$

7. $5(x + 2) = 45$

- Distribute: $5x + 10 = 45$
- Subtract 10 from both sides: $5x = 35$
- Divide both sides by 5: $x = 7$
- Check: $5(7 + 2) = 5(9) = 45$ ✓

Answer: $x = 7$

8. $3x + 8 = 2x + 15$

- Subtract $2x$ from both sides: $x + 8 = 15$
- Subtract 8 from both sides: $x = 7$
- Check: $3(7) + 8 = 29$ and $2(7) + 15 = 29$ ✓

Answer: $x = 7$

9. $6(x - 3) = 2(x + 5)$

- Distribute both sides: $6x - 18 = 2x + 10$
- Subtract $2x$ from both sides: $4x - 18 = 10$
- Add 18 to both sides: $4x = 28$
- Divide both sides by 4: $x = 7$
- Check: $6(4) = 24$ and $2(12) = 24$ ✓

Answer: $x = 7$

10. The sum of three consecutive integers is 63.

- Let the integers be $n, n + 1, n + 2$.
- $n + (n + 1) + (n + 2) = 63 \rightarrow 3n + 3 = 63$
- Subtract 3: $3n = 60 \rightarrow n = 20$
- The integers are 20, 21, 22. Check: $20 + 21 + 22 = 63$ ✓

Answer: 20, 21, 22