

Solving Multi-Step Equations

Name: _____ **Date:** _____ **Directions:** Show your

work clearly and check each answer when possible.

Part A: Distribute and Combine

Show each algebraic step and check the solution.

1. $3(x + 4) - 2 = x + 20$

2. $4(y - 2) + 7 = 2y - 7$

3. $-2(z + 5) + 6 = 3z - 24$

4. $5(a - 1) - 8 = 2a + 5$

5. $2(b + 7) + 3 = -b + 2$

Part B: Variables on Both Sides

Collect variable terms on one side before isolating the variable.

6. $-3(m - 4) + 5 = 2m - 18$

7. $6(n + 2) - 9 = 4n + 9$

8. $2(p - 6) + 11 = 5p + 11$

9. $-4(q + 3) - 7 = q - 29$

10. $7(r - 2) + 4 = 3r + 10$

Part C: Mixed Practice*Solve and check each multi-step equation.*

11. $3(s + 5) - 10 = -2s$

12. $-5(t + 1) + 8 = 2t - 25$

13. $4(u + 6) - 3 = -u + 11$

14. $2(v - 3) + 9 = -4v + 39$

Solving Multi-Step Equations – Answer Key

Equivalent algebraic forms are acceptable.

1. $x = 5$

2. $y = -3$

3. $z = 4$

4. $a = 6$

5. $b = -5$

6. $m = 7$

7. $n = 3$

8. $p = -4$

9. $q = 2$

10. $r = 5$

11. $s = -1$

12. $t = 4$

13. $u = -2$

14. $v = 6$