

11-Multi-Step Equations with One, No, Infinite Solutions

Score _____ Per _____

1. What does it mean when we say an equation has *one solution*? _____

2. What does it mean when we say an equation has *no solution*? _____

3. What does it mean when we say an equation has *infinite solutions*? _____

4. If you solve an equation and get $9 = 2$, how many solutions does that equation have? _____
5. If you solve an equation and get $4 = 4$, how many solutions does that equation have? _____
6. If you solve an equation and get $x = 5$, how many solutions does that equation have? _____
7. Fill in the blank so the equation has infinite solutions:

$$2x - 12 + 3x - 13 = 5(x + \underline{\hspace{1cm}})$$

8. Fill in the blank so the solution is $x = -2$:

$$3x - 8 = 2x - 3 + 4x + \underline{\hspace{1cm}}$$

9. Bethany solved the equation $7r + 2 = 2 + 3r$ and got $r = 0$. She wrote down that there is no solution because she explained that 0 is nothing. Explain why Bethany might be confused, and why she is incorrect.

10. Make up an equation that has no solution. _____

Solve your equation to prove there is no solution.

Determine whether there are one, no, or infinite solutions. If there is one solution, give the solution and check your answer.

11. $2x + 3 = 2x + 3$

12. $3m - 3m + 1 = -5m + 11 + 5m$

13. $-4 - 6x = 3x - 4(1 - 6x)$

14. $7h - h + 2 = -1 + 6h + 3$

15. $-(k + 6) = -k + 6$

16. $7x - 14 = -7(x + 2)$

17. $8m + 3 - 5m = 6m - 3(m + 1)$

18. $-2(1 + 6k) = 2 + 8(-5k + 3)$