Multi-Step Equations Worksheet

1. Solve: $3x + 5 + 2x = 20$.
2. Simplify and solve: $4(x + 3) - 2x = 14$.
3. Combine like terms and solve: $6x - 2 + 3x = 25$.
4. Solve using distribution: $5(2x-1) = 35$.
5. Distribute and solve: $3(x + 4) - 2(x - 3) = 18$.
6. Solve: $7x - 3 = 2x + 12$.
7. Solve: $8x + 5 = 3x + 20$.
8. Solve: $\frac{2x}{3} + 4 = 10$.
9. Solve: $0.2x + 3.5 = 5.7$.
10. A number, when multiplied by 3 and decreased by 5, equals 16. Find the number.
11. The sum of three consecutive integers is 54. Find the integers.
12. Solve and state the case: $2(x - 3) = 2x - 6$.
13. Solve and state the case: $5x + 10 = 5(x + 3)$.
14. Solve and verify: $4x + 7 = 2x + 15$.
15. Solve and verify: $6(x - 2) = 12 + 4x$.
16. Solve: $9x - 4 = 5x + 12$.
17. Solve: $\frac{3(x+2)}{4} = 6$.
18. Simplify and solve: $2(3x - 1) - x = 9$.
19. Solve: $7x + 2 - 4x = 14$.
20. A number, when doubled and decreased by 8, equals 24. Find the number.
21. Solve: $4x + 5 = 3x + 11$.
22. Solve and simplify: $2(x+4)-3 = x+7$.
23. Solve: $\frac{5x-2}{3} = 4$.
24. Solve: $10x - 3 = 7x + 15$.
25. Simplify and solve: $3(x - 2) + 4x = 18$.

Solutions to Multi-Step Equations Worksheet

1. $3x + 5 + 2x = 20$

   $5x + 5 = 20$

   $5x = 15$

   $x = 3.$

2. $4(x + 3) - 2x = 14$

   $4x + 12 - 2x = 14$

   $2x + 12 = 14$

   $2x = 2$

   $x = 1.$

3. $6x - 2 + 3x = 25$

   $9x - 2 = 25$

   $9x = 27$

   $x = 3.$

4. $5(2x - 1) = 35$

   $10x - 5 = 35$

   $10x = 40$

   $x = 4.$

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

   $3x + 12 - 2x + 6 = 18$

   $x + 18 = 18$

   $x = 0.$

6. $7x - 3 = 2x + 12$

   $5x - 3 = 12$

   $5x = 15$

   $x = 3.$

7. $8x + 5 = 3x + 20$

   $5x + 5 = 20$

   $5x = 15$

   $x = 3.$

8. $\frac{2x}{3} + 4 = 10$

   $\frac{2x}{3} = 6$

   $2x = 18$

   $x = 9.$

9. $0.2x + 3.5 = 5.7$

   $0.2x = 2.2$

   $x = 11.$

10. $3x - 5 = 16$

    $3x = 21$

    $x = 7.$

11. $x + (x + 1) + (x + 2) = 54$

    $3x + 3 = 54$

    $3x = 51$

    $x = 17$. Integers: 17, 18, 19.

12. $2(x - 3) = 2x - 6$

    $2x - 6 = 2x - 6$

    Infinite solutions.

13. $5x + 10 = 5(x + 3)$

    $5x + 10 = 5x + 15$

    No solution.

14. $4x + 7 = 2x + 15$

    $2x + 7 = 15$

    $2x = 8$

    $x = 4$. Verified.

15. $6(x - 2) = 12 + 4x$

    $6x - 12 = 12 + 4x$

    $2x - 12 = 12$

    $2x = 24$

    $x = 12$. Verified.

16. $9x - 4 = 5x + 12$

    $4x - 4 = 12$

    $4x = 16$

    $x = 4$.

17. $\frac{3(x+2)}{4} = 6$

    $3(x + 2) = 24$

    $3x + 6 = 24$

    $3x = 18$

    $x = 6$.

18. $2(3x - 1) - x = 9$

    $6x - 2 - x = 9$

    $5x - 2 = 9$

    $5x = 11$

    $x = \frac{11}{5}$.

19. $7x + 2 - 4x = 14$

    $3x + 2 = 14$

    $3x = 12$

    $x = 4$.

20. $2x - 8 = 24$

    $2x = 32$

    $x = 16$.

21. $4x + 5 = 3x + 11$

    $x + 5 = 11$

    $x = 6$.

22. $2(x + 4) - 3 = x + 7$

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

    $x + 5 = 7$

    $x = 2$.

23. $\frac{5x-2}{3} = 4$

    $5x - 2 = 12$

    $5x = 14$

    $x = \frac{14}{5}$.

24. $10x - 3 = 7x + 15$

    $3x - 3 = 15$

    $3x = 18$

    $x = 6$.

25. $3(x - 2) + 4x = 18$

    $3x - 6 + 4x = 18$

    $7x - 6 = 18$

    $7x = 24$

    $x = \frac{24}{7}$.