

2-3**Practice**

Form K

Solving Multi-Step Equations

Solve each equation. Check your answer.

1. $20 + g + g = 14$ **-3**

2. $7 + 4x - 9 = -6$ **-1**

3. $-12 = -5 - 6n + 11$ **3**

4. $t + 10 - 4t = -11$ **7**

5. $8 = 8p + 13 - 3p$ **-1**

6. $4y - 16 + 8y = -4$ **1**

Write an equation to model each situation. Then solve the equation.

7. A plumber finished three jobs on Tuesday. The first two only cost the owner the \$45 trip fee because they took very little time to complete. For the third job, the plumber charged the trip fee plus 6 times his hourly rate. If the plumber received a total of \$303 for the day, what is the hourly rate?

$45 + 45 + 45 + 6h = 303$; \$28 per hour

8. Three times a number plus 12 minus 5 times the same number is 22. What is the number?

$3n + 12 - 5n = 22$; -5

Solve each equation. Check your answer.

9. $4(-2d - 3) = 12$ **-3**

10. $5(5t - 2) = -35$ **-1**

11. $-2(a + 6) = -22$ **5**

12. $60 = 6(6 - 2n)$ **-2**

13. $-14 = -4(9x - 1)$ **$\frac{1}{2}$**

14. $-(5z + 12) = 18$ **-6**

2-3

Practice (continued)

Form K

Solving Multi-Step Equations

15. Eli took the fleet of 8 vans for oil changes. All of the vans needed windshield wipers which cost \$24 per van. The total bill was \$432. Write an equation to find out what each oil change cost. Solve the equation.

$$8(v + 24) = 432; \$30$$

Solve each equation. Choose the method you prefer. Check your answer.

16. $\frac{m}{3} + \frac{1}{3} = \frac{2}{3}$ **1**

17. $5r - \frac{1}{5} = \frac{4}{5}$ **$\frac{1}{5}$**

18. $\frac{w}{9} - 6 = \frac{7}{9}$ **61**

19. $1.75t - 4.5 = 7.75$ **7**

20. $6z + 0.36 = 24.72$ **4.06**

21. $7.85 - 2.15c = 20.75$ **-6**

22. **Writing** Describe the first step you would take in solving $12 = 7 - 3x + 5x$. Explain.

First, you would combine the like terms $-3x$ and $5x$. This will result in having just one variable which needs to be isolated when solving.

23. **Writing** Describe how you would solve $-8 = \frac{1}{9}(-9t + 27)$.

The first way is to use the distributive property first by distributing the $\frac{1}{9}$ into $-9t + 27$ and then solving the resulting two-step equation. The second way is to use the multiplication property of equality and multiply each side by 9. The result is a two-step equation that can be solved.

Solve each equation. Round to the nearest hundredth if necessary.

24. $11 + \frac{4x}{-5} = \frac{2}{3}$ **12.92**

25. $\frac{5}{7}(k + 5) = -7$ **-14.8**

26. **Reasoning** Can you solve the equation $\frac{3}{4}(6x + 9) = 14$ by using the Division Property of Equality? Explain.

Yes; for your first step, you would divide each side by $\frac{3}{4}$ or multiply by $\frac{4}{3}$. Then you can solve the two-step equation.