Name _____ Date _____ Class _____

SKILL 71

Skills Readiness

Solve Equations with Fractions

You solve multi-step equations with fractions just like you solve multi-step equations with integers.

Step 1: Use inverse operations to undo any addition or subtraction.

Step 2: When the coefficient of the variable is a fraction, multiply each side of the equation by the reciprocal of the fraction and then simplify. If the coefficient is not a fraction, but there are other fractions in the equation, multiply by the reciprocal of the coefficient rather than dividing.

Example: Solve $\frac{4}{5}x - 12 = 8$.

$\frac{4}{5}x - 12 + 12 = 8 + 12$ Add 12 to both sides.

$\frac{4}{5}x = 20$

$\frac{5}{4} \cdot \frac{4}{5}x = 20 \cdot \frac{5}{4}$ Multiply by the reciprocal.

$\frac{\cancel{5}}{\cancel{4}} \cdot \frac{\cancel{4}}{\cancel{5}}x = \cancel{20}^{5} \cdot \frac{5}{\cancel{4}}$ Simplify.

$x = 25$

Practice on Your Own

Solve.

1. $\frac{2}{3}x + 5 = 17$ _____

2. $\frac{1}{7}x - 3 = -9$ _____

3. $4y - \frac{5}{3} = \frac{7}{3}$ _____

4. $2x + \frac{1}{6} = -\frac{11}{6}$ _____

5. $x - \frac{1}{8} = -\frac{3}{8}$ _____

6. $\frac{9}{4}x + \frac{1}{5} = \frac{11}{5}$ _____

7. $-\frac{1}{2}y + \frac{3}{7} = \frac{5}{7}$ _____

8. $6x = 3x + \frac{9}{25}$ _____

9. $4y = 9y - \frac{5}{2}$ _____

Check

Solve.

10. $\frac{5}{2}x + 11 = 21$ _____

11. $\frac{3}{4}y - 8 = -7$ _____

12. $5x - \frac{4}{7} = \frac{10}{7}$ _____

13. $y + \frac{10}{11} = \frac{5}{11}$ _____

14. $\frac{7}{5}x - \frac{1}{2} = \frac{3}{2}$ _____

15. $8x = 5x - \frac{3}{8}$ _____