Name _____ Date _____ Class _____

LESSON 12-1

Reteach

Solving Two-Step Equations

You can solve two-step equations by undoing one operation at a time. First undo any addition or subtraction, then undo any multiplication or division.

Complete the steps to solve each equation.

1. $7x + 3 = 31$

$7x + 3 - ___ = 31 - ___$ ← Subtract ___ from both sides to undo addition.

$7x = 28$

$\frac{7x}{___} = \frac{28}{___}$ ← Divide both sides by ___ to undo multiplication.

$x = 4$

Check

$7x + 3 = 31$

$7(___) + 3 \stackrel{?}{=} 31$ ← Substitute ___ for x.

$___ + 3 \stackrel{?}{=} 31$

$31 \stackrel{?}{=} 31$ ✓ ← 4 is a solution.

2. $\frac{n}{6} - 8 = 4$

$\frac{n}{6} - 8 + __ = 4 + __$

$\frac{n}{6} = 12$

$6 \cdot \frac{n}{6} = __ \cdot 12$

$n = ___$

3. $8a - 5 = 11$

$8a - 5 + __ = 11 + __$

$8a = ___$

$\frac{8a}{__} = \frac{16}{__}$

$a = __$

4. $9 + \frac{w}{2} = 12$

$9 - __ + \frac{w}{2} = 12 - __$

$\frac{w}{2} = __$

$2 \cdot \frac{w}{2} = __ \cdot 3$

$w = __$

Solve.

5. $4n + 11 = 27$

_____

6. $\frac{z}{7} - 6 = 3$

_____

7. $3 - 2k = -7$

_____

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LESSON 12-1

Practice A

Solving Two-Step Equations

Solve each equation. Cross out each number in the box that matches a solution.

6	−8	−4	−6	−18	−3	2	4	8	3	18

1. $5x + 8 = 23$ — $x = 3$

2. $-2p - 4 = 2$ — $p = -3$

3. $6a - 11 = 13$ — $a = 4$

4. $4n + 12 = 4$ — $n = -4$

5. $9g + 2 = 20$ — $g = 2$

6. $\frac{k}{6} + 8 = 5$ — $k = -18$

7. $\frac{s}{3} - 4 = 2$ — $s = 18$

8. $\frac{c}{2} + 5 = 1$ — $c = -8$

9. $9 + \frac{a}{6} = 8$ — $a = -6$

Solve. Check each answer.

10. $3v - 12 = 15$ — $v = 9$

11. $8 + 5x = -2$ — $x = -2$

12. $\frac{d}{4} - 9 = -3$ — $d = 24$

13. An electrician charges $50 to come to your house. He also charges $25 for each hour he spends at your house. The electrician charges you a total of $125. How many hours did he spend at your house?

3 hours

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LESSON 12-1

Practice B

Solving Two-Step Equations

Solve. Check each answer.

1. $7x + 8 = 36$ — $x = 4$

2. $-3y - 7 = 2$ — $y = -3$

3. $4a - 13 = 19$ — $a = 8$

4. $6a - 4 = -2$ — $a = \frac{1}{3}$

5. $5k + 2 = 6$ — $k = \frac{4}{5}$

6. $9m - 14 = -8$ — $m = \frac{2}{3}$

Solve.

7. $\frac{v}{4} - 3 = 5$ — $v = 32$

8. $\frac{u}{5} + 3 = 1$ — $u = -10$

9. $6 + \frac{z}{9} = 9$ — $z = 27$

10. $-7 + \frac{f}{2} = -1$ — $f = 12$

11. $9 + \frac{w}{4} = -5$ — $w = -56$

12. $\frac{e}{7} - 3 = -5$ — $e = -14$

13. $-8 + \frac{d}{5} = 2$ — $d = 50$

14. $\frac{u}{5} + 3 = 6$ — $u = 15$

15. $\frac{f}{-3} + 5 = 8$ — $f = -9$

16. Two years of local Internet service costs $685, including the installation fee of $85. What is the monthly fee?

$25 per month

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LESSON 12-1

Practice C

Solving Two-Step Equations

Solve. Check each answer.

1. $15h - 4 = 6$ — $h = \frac{2}{3}$

2. $25k + 12 = -13$ — $k = -1$

3. $8m - 14 = -7$ — $m = \frac{7}{8}$

4. $-5m - 6 = 84$ — $m = -18$

5. $3f + 8 = 28$ — $f = 6\frac{2}{3}$

6. $5z + 6 = -20$ — $Z = -5\frac{1}{5}$

Solve.

7. $\frac{d}{14} - 9 = 5$ — $d = 196$

8. $\frac{a}{35} + 20 = 18$ — $a = -70$

9. $\frac{3}{4} - 9p = -\frac{3}{5}$ — $p = \frac{3}{20}$

10. $-2\frac{2}{3} + \frac{d}{6} = \frac{2}{3}$ — $d = 20$

11. $-\frac{1}{4} + \frac{f}{8} = \frac{1}{2}$ — $f = 6$

12. $-\frac{2}{3} = 6 + \frac{v}{-3}$ — $v = 20$

Translate each equation into words, and then solve the equation.

13. $7 + \frac{n}{2} = 10$

7 more than one half a number equals 10; $n = 6$

14. $4w - 9 = -5$

4 times a number, minus 9, equals −5; $w = 1$

15. A taxi charges $1.50 plus a fee of $0.60 for each mile traveled. If a ride costs $5.40, how many miles was the ride?

$6\frac{1}{2}$ miles

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LESSON 12-1

Reteach

Solving Two-Step Equations

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Complete the steps to solve each equation.

1. $7x + 3 = 31$

$7x + 3 - \underline{3} = 31 - \underline{3}$ ← Subtract 3 from both sides to undo addition.

$7x = 28$

$\frac{7x}{7} = \frac{28}{7}$ ← Divide both sides by 7 to undo multiplication.

$x = 4$

Check

$7x + 3 = 31$

$7(\underline{4}) + 3 \stackrel{?}{=} 31$ ← Substitute 4 for x.

$\underline{28} + 3 \stackrel{?}{=} 31$

$31 \stackrel{?}{=} 31$ ✓ ← 4 is a solution.

2. $\frac{n}{6} - 8 = 4$

$\frac{n}{6} - 8 + \underline{8} = 4 + \underline{8}$

$\frac{n}{6} = 12$

$6 \cdot \frac{n}{6} = \underline{6} \cdot 12$

$n = \underline{72}$

3. $8a - 5 = 11$

$8a - 5 + \underline{5} = 11 + \underline{5}$

$8a = \underline{16}$

$\frac{8a}{8} = \frac{16}{8}$

$a = \underline{2}$

4. $9 + \frac{w}{2} = 12$

$9 - \underline{9} + \frac{w}{2} = 12 - \underline{9}$

$\frac{w}{2} = \underline{3}$

$2 \cdot \frac{w}{2} = \underline{2} \cdot 3$

$w = \underline{6}$

Solve.

5. $4n + 11 = 27$ — $n = 4$

6. $\frac{z}{7} - 6 = 3$ — $z = 63$

7. $3 - 2k = -7$ — $k = 5$

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