Date: _____

8.3 Solving Equations: $a(x + b) = c$

***MathLinks 9*, pages 314–321**

Key Ideas Review

For #1 to 2, choose from the following terms to complete each statement.

distributive	divide	substitute

1. The first step in solving $5(x + 2) = 15.25$ is to _____ both sides or use the _____ property.
2. To check that $x = 1.05$, you can _____ 1.05 into the equation $5(x + 2) = 15.25$.
3. To avoid fraction operations, rewrite $\frac{1}{3}(x - 4) = 2$ as _____.

Check Your Understanding

4. Solve and check.

   a) $3(x + 4.2) = 10.5$

   b) $-2.7 = -5(m - 3.2)$

   c) $-2.7 = 3(a + 3.2)$

   d) $4(2 - x) = 0$

5. Solve. Express your answer to the nearest hundredth.

   a) $-7(2.45 + v) = 12.2$

   b) $-3.56 = 2.7(4 - y)$

   c) $3(u - 12.75) = -3.41$

   d) $6(0.15 + w) = 10$

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6. Solve.

a) $\frac{x+3}{2} = \frac{3}{8}$ **b)** $-\frac{6}{5} = \frac{2-x}{4}$

c) $\frac{2(p-3)}{3} = \frac{1}{4}$ **d)** $\frac{1}{3}(e+3) = \frac{1}{5}$

7. Solve and check.

a) $\frac{K-2.1}{7} = 3.4$ **b)** $2.4 = \frac{9.3+j}{-3}$

c) $\frac{y+0.139}{-1} = -4.61$ **d)** $-2.5 = \frac{n+7.34}{-6}$

8. The side length of a small square is s. A larger square has a perimeter of 124.8 cm. Its sides are 3.2 cm longer than those of the small square.

a) Represent the situation with an equation of the form $a(x + b) = c$. Then, determine the side length of the smaller square.

b) Verify your solution by using a model.

9. Valerie bought five packages of golf balls on sale for $29.50. Each package had a discount of $2.75. Write and solve an equation to determine the regular price of each package.

10. Four-fifths of the sum of a number and three is equal to six and a half. What is the number?

11. The distance a boat travels upstream can be found using the formula $d = t(b - r)$, where d is the distance travelled, t is the time of travel, b is the speed of the boat in still water, and r is the speed at which the river is flowing.

a) Determine b when $r = 2.5$ km/h, $d = 2.8$ km, and $t = 0.4$ h

b) Determine r when $d = 5.95$ km, $t = 0.7$ h, $b = 11.7$ km/h