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### 8.4 Solving Equations: $a x=b+c x, a x+b=$ $c x+d, a(b x+c)=d(e x+f)$

MathLinks 9, pages 322-329

## Key Ideas Review

Decide whether each of the following statements is true or false. Circle the word True or False. If the statement is false, rewrite it to make it true.

1. True/False To solve $7 x+5=3 x-11$ by the distributive property, first subtract 5 from both sides of the equation.
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2. True/False The equation $2(4.5 x+3)=-5(3 x-1.3)$ becomes $9 x+6=-15 x+6.5$ by using the reverse order of operations.
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$\qquad$
3. True/False The solution $x=0.02$ is correct if the left and right sides of the problem equation are equal when that value is substituted for $x$.
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$\qquad$

## Check Your Understanding

4. Solve and check.
a) $3 x-7=8 x$
b) $4 n=-5 n+4.5$
c) $2.6 x=10-1.4 x$
d) $13.8-0.6 y=-1.1 y$
5. Solve. Express your answers in fraction form.
a) $\frac{2}{3}(2 x-3)=4 x$
b) $\frac{3}{5} c=\frac{1}{4}(2-3 \mathrm{c})$
c) $\frac{1}{6}(13+3 x)=\frac{4}{3} x$
d) $-\frac{9}{2} w=\frac{3}{8}(7-4 w)$
$\qquad$
6. Solve. Express each answer to the nearest hundredth.
a) $8 x+13=15 x-2$
b) $12 p-0.7=5 p+3.2$
c) $2-11 m=-2 m+21$
7. Solve.
a) $6(p-1.5)=5(2 p+1.8)$
b) $\frac{2 x-5}{3}=\frac{3 x+1}{2}$
c) $\frac{3}{4}(2 k-7)=-\frac{1}{8}(5-2 k)$
8. Brian has $\$ 45.25$ saved and earns \$7.25/week. Dakota has $\$ 25.25$ saved and earns $\$ 9.75 /$ week. In how many weeks will they have the same amount?
9. Determine the value of $x$ so that the square and the rectangle shown have equal perimeters.

10. Torrin rode his bike to school at $13.5 \mathrm{~km} / \mathrm{h}$. He returned home using the same route at $10.5 \mathrm{~km} / \mathrm{h}$. Torrin took a total of 36 min to ride to school and back. Express your answer to the nearest hundredth.
a) How many minutes did Torrin take to ride to school?
b) How far is it from Torrin's house to school?
11. A local sports centre charges $\$ 8$ per visit. For an annual membership fee of $\$ 45$, the cost per visit is only $\$ 5.50$. What is the least number of visits needed in a year in order for the membership to be a better deal?
