

LESSON

3.2

Review Vocabulary
like terms, p. 78

Solving Equations Having Like Terms *and* Parentheses

BEFORE

▶ *Now*

WHY?

You used the distributive property.

You'll solve equations using the distributive property.

So you can budget for fishing rods, as in Ex. 20.

$$\cancel{4} \cdot \frac{(X+2)}{\cancel{4}} = 2 \cdot 4$$

$$2 + X + 2 = 8 + 2$$
$$X = 6$$

$$\frac{-14.7}{+3.2} r \pm 14.7 = -6.74 \pm 14.7$$

$$\frac{1}{3.2} 3.2 r = -21.44 \cdot \frac{1}{3.2}$$
$$r = -\frac{21.44}{3.2}$$
$$= -6.7$$
$$\begin{array}{r} 6.74 \\ 14.70 \\ \hline 21.44 \end{array}$$

$$\cancel{4x} + \frac{w}{4} + \cancel{21} = -3 + 21$$

$$\cancel{4} \cdot \frac{w}{\cancel{4}} = 18 \cdot 4$$

$$w = 72$$

Practice A

For use with pages 125-129

Tell whether the given value of the variable is a solution of the equation.

1. $5 + x + 3 = 14$; $x = 7$

2. $4x + 9x + 1 = 27$; $x = 2$

$$4x + 9x + 1 = 27$$

$$4 \cdot 2 + 9 \cdot 2 + 1 = 27$$

$$8 + 18 + 1 = 27$$

$$27 = 27 \quad \checkmark$$

3. $4(x + 7) = 16; x = -3$

4. $18 - 2(x - 3) = 26; x = 1$

$$18 - 2(1 - 3) = 26$$

$$18 - 2(-2) = 26$$

$$18 + 4 = 26$$

$$22 = 26$$

NO

Solve the equation. Check your solution.

5. $3x + 8 + x = 28$

6. $9x + 7 - 2x = 14$

7. $17 + 3x - 11 = 0$

$$17 + 3x - 11 = 0$$

$$6 + 6 + 3x = 0 - 6$$

$$\frac{1}{3} \quad 3x = -6 \cdot \frac{1}{3}$$

$$x = -2$$

8. $12x - 1 - 10x = 23$

9. $3(6 - x) = 27$

10. $-2(x + 7) = 16$

$$12x - 1 - 10x = 23$$

$$1 + 2x - 1 = 23 - 1$$

$$\frac{1}{2} 2x = 24 \cdot \frac{1}{2}$$

$$x = 12$$

11. $-40 = 4(x - 10)$

12. $20 = -5(x + 7)$

13. $-6(2x + 3) = 42$

$$-40 = 4(x - 10)$$

$$-40 - 40 = 4x - 40 - 40$$

$$\frac{1}{4} \cdot 0 = 4x \cdot \frac{1}{4}$$

$$0 = x$$

14. $2(11 - 4x) = 38$

15. $14x - 6 - 11x = 21$

16. $8 + 5x - 6 = 37$

$$2(11 - 4x) = 38$$

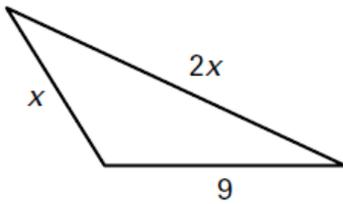
$$\rightarrow 22 + 22 + -8x = 38 \rightarrow 22$$

$$\frac{-1}{8} \frac{-8x}{1} = \frac{16}{-8} \frac{1}{-8}$$

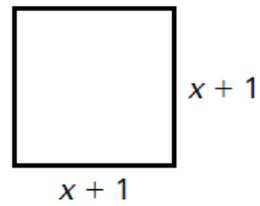
$$x = -2$$

Find the value of x for the given triangle, rectangle, or square.

17. Perimeter = 30 units

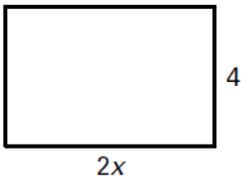


18. Perimeter = 24 units

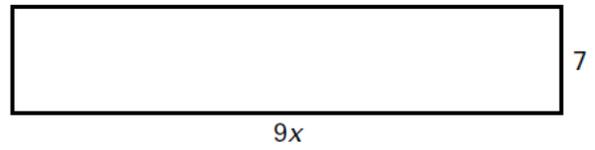


$$\begin{aligned} 4(x+1) &= 24 \\ -4 &+ 4x + 4 = 24 - 4 \\ \frac{-}{4} &4x = 20 \frac{1}{4} \\ x &= 5 \frac{1}{4} \end{aligned}$$

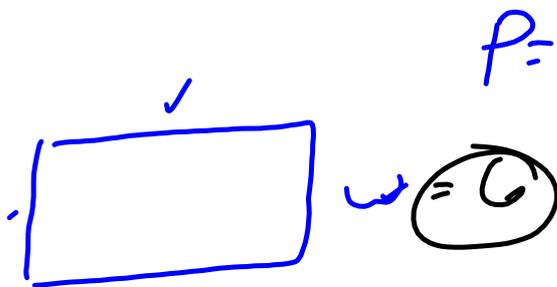
19. Perimeter = 20 units



20. Perimeter = 50 units



21. The perimeter of a rectangular picture frame is 30 inches. The length of the frame is three less than twice the width. What are the dimensions of the frame?



$$\begin{aligned}
 &2w - 3 \\
 &2 \cdot 6 - 3 \\
 &12 - 3 \\
 &\textcircled{9}
 \end{aligned}$$

$$\begin{aligned}
 &2(2w - 3) + 2w = 30 \\
 &2(2w + 3) + 2w = 30 \\
 &4w + 6 + 2w = 30 \\
 &6w + 6 = 30 - 6 \\
 &\frac{1}{6} 6w = 36 \frac{-6}{6} \\
 &w = 6
 \end{aligned}$$

22. You spend \$91 shopping for new clothes. You spend \$24 for a pair of jeans and \$35 for a pair of shoes. You also buy 4 shirts that each cost d dollars. How much is each shirt?

$$24 + 35 + 4D = 91$$

$$\cdot 59 \quad 59 + 4D = 91 \quad - 59$$

$$\frac{1}{4} 4D = 32 \frac{1}{4}$$

$$D = 8$$

23. You spend \$55 shopping for birthday gifts. You buy one of your friends a gift certificate for \$15, and your other friend a pair of shorts for \$16. You also buy your older brother 2 compact discs that each cost d dollars. How much is each compact disc?

$$15 + 16 + 2D = 55$$

$$\cdot 3' \quad 31 + 2D = 55 - 31$$

$$\frac{1}{2} 2D = 24 \frac{1}{2}$$

$$D = 12$$