

## 1.1 Start Thinking

The angle measures of any four-sided figure sum to 360 degrees. How can you find the fourth angle measure when you know the sum of the other three angle measures?

## 1.1 Warm Up

Simplify the expression.

1.  $5 + (-15)$

2.  $6 - 7$

3.  $10 \cdot (-1)$

4.  $\frac{-30}{2}$

5.  $-1 \times 0$

6.  $4 - (-5)$

## 1.1 Cumulative Review Warm Up

Tell which property the statement illustrates.

1.  $2 + 4 = 4 + 2$

2.  $(3 \cdot 7)4 = 3(7 \cdot 4)$

3.  $8 + 0 = 8$

4.  $7 \cdot \left(\frac{1}{7}\right) = 1$

5.  $4 \cdot 0 = 0$

6.  $12(8 + 3) = 12 \cdot 8 + 12 \cdot 3$

# 1.1 Practice A

In Exercises 1–6, solve the equation. Justify each step. Check your solution.

1.  $x + 2 = 5$

2.  $g - 4 = 3$

3.  $m - 1 = 8$

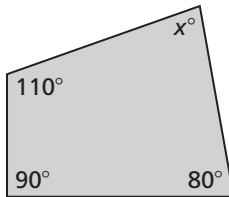
4.  $d + 4 = -2$

5.  $p + 7 = 5$

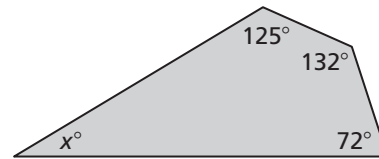
6.  $k - 6 = -4$

The sum of the angle measures of a quadrilateral is  $360^\circ$ . In Exercises 7 and 8, write and solve an equation to find the value of  $x$ . Use a protractor to check the reasonableness of your answer.

7.



8.



In Exercises 9–14, solve the equation. Justify each step. Check your solutions.

9.  $3t = 24$

10.  $7p = 28$

11.  $s \div 4 = 3$

12.  $j \div 5 = 2$

13.  $-6q = 54$

14.  $c \div (-9) = 2$

In Exercises 15–20, solve the equation. Check your solution.

15.  $h + \frac{1}{3} = \frac{5}{3}$

16.  $w - \frac{7}{9} = \frac{2}{9}$

17.  $\frac{3}{5}f = 9$

18.  $u + 2.7 = 1.5$

19.  $32\pi t = 64\pi$

20.  $m \div (-7) = 2.1$

In Exercises 21–23, write and solve an equation to answer the question.

21. The width of a laptop is 11.25 inches. The width is 0.75 times the length. What is the length of the laptop?

22. The temperature at 10 A.M. is 12 degrees Fahrenheit. The temperature at 6:00 A.M. was  $-7$  degrees Fahrenheit. How many degrees did the temperature rise?

23. The population of a city is 645 people less than it was 5 years ago. The current population is 13,500. What was the population 5 years ago?

24. Identify the property of equality that makes Equation 1 and Equation 2 equivalent.

<b>Equation 1</b>	$4.2x - 1.5 = 1.7x + 8.3$
<b>Equation 2</b>	$42x - 15 = 17x + 83$

# 1.1 Practice B

In Exercises 1–6, solve the equation. Justify each step. Check your solution.

1.  $p + 7 = -9$
2.  $0 = k - 2$
3.  $-10 = w + 1$
4.  $g + (-3) = 4$
5.  $-14 = -9 + q$
6.  $s - (-12) = 15$
7. Shopping online, you find a skateboard that costs \$124.99, which is \$42.50 less than the price at a local store. Write and solve an equation to find the local price.

In Exercises 8–13, solve the equation. Justify each step. Check your solutions.

8.  $-32 = 4y$
9.  $r \div (-8) = 5$
10.  $\frac{k}{3} = 4$
11.  $\frac{z}{-2} = 7$
12.  $9 = b \div (-1)$
13.  $-100 = \frac{p}{10}$

In Exercises 14–19, solve the equation. Check your solution.

14.  $k - \frac{4}{7} = \frac{2}{7}$
15.  $-\frac{2}{9}d = 18$
16.  $h + \frac{\pi}{2} = \frac{3\pi}{2}$
17.  $5t = -7.5$
18.  $4 + 12 \div 2 = -5v$
19.  $a + 8 = 9 \times 3 - 10$

20. Describe and correct the error in solving the equation.

✗

$$-\frac{2}{3}p = 4$$

$$-\frac{2}{3}p + \frac{2}{3} = 4 + \frac{2}{3}$$

$$p = 4\frac{2}{3}$$

21. As  $c$  decreases, does the value of  $x$  *increase*, *decrease*, or *stay the same* for each equation? Assume  $c$  is positive.

Equation	Value of $x$
$x + c = 0$	
$-cx = -c$	
$\frac{x}{c} = 1$	

22. One-fifth of the plants in a garden are grape tomato plants. Two-ninths of the plants in the garden are cherry tomato plants. The garden has 18 grape tomato plants and 20 cherry tomato plants. How many other plants are in the garden? Explain.

# 1.1 Enrichment and Extension

## Solving Simple Equations

Solve the equation. Justify each step. Check your solution.

1.  $x + \frac{4}{5} = \frac{5}{2}$

2.  $\frac{9}{16} = \frac{3}{4}t$

3.  $w - \frac{1}{2} = 2\frac{2}{3}$

4.  $\frac{m}{-7} = 1\frac{1}{4}$

5.  $\frac{\pi}{2}t = \frac{5\pi}{6}$

6.  $x \div \frac{4}{5} = -\frac{7}{8}$

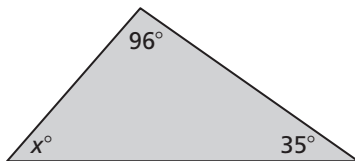
7.  $3.2t = 6.4$

8.  $150 = 7.5x$

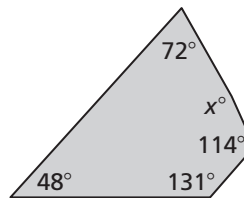
9.  $w \div 2.4 = 6.52$

The sum of the angle measures of a polygon follows the general rule of  $(n - 2) \cdot 180^\circ$ , where the variable  $n$  represents the number of sides. In Exercises 10–15, write and solve an equation to find the value of  $x$ . Use a protractor to check the reasonableness of your answer.

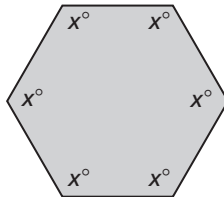
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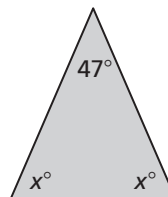
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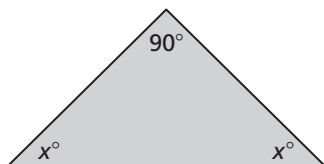
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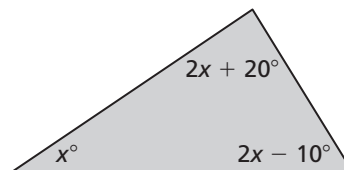
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14.



15.



16. It takes a plane 4 hours and 15 minutes to fly from Orlando, Florida, to Boston, Massachusetts. The distance between the two cities is 1114 miles.

- What is the average speed of the plane in miles per hour?
- If every mile is approximately 1.6 kilometers, what is the speed of the airplane in kilometers per hour?



## Puzzle Time

### Did You Hear About The Tree's Birthday?

Circle the letter of each correct answer in the boxes below. The circled letters will spell out the answer to the riddle.

Find the value of the variable which satisfies the equation.

1.  $m + 7 = 9$

2.  $x + 11 = 4$

3.  $n - \frac{3}{5} = \frac{2}{5}$

4.  $-18 = r - 12$

5.  $s - (-10) = 2$

6.  $6.3 = b - 1.5$

7.  $1.4h = 5.6$

8.  $y \div 9 = -3$

9.  $-7c = -63$

10.  $\frac{x}{8} = -3$

11.  $-\frac{6}{7}a = 18$

12.  $-144\pi = -12\pi k$

Solve an equation to answer the question.

13. The students on a decorating committee create a banner. The length of the banner is 2.5 times its width. The length of the banner is 20 feet. What is the width (in feet) of the banner?
14. The student council consists of 32 members. There are 27 members decorating for the dance. How many members are not decorating?

<b>B</b>	<b>L</b>	<b>I</b>	<b>B</b>	<b>M</b>	<b>T</b>	<b>T</b>	<b>C</b>	<b>N</b>	<b>W</b>	<b>D</b>	<b>A</b>	<b>O</b>	<b>E</b>	<b>S</b>	<b>P</b>
15	-18	4	2.1	13	-16	-21	4.6	17	9	-13	5	9.1	8.2	7.8	11.6
<b>A</b>	<b>Q</b>	<b>G</b>	<b>U</b>	<b>S</b>	<b>A</b>	<b>H</b>	<b>P</b>	<b>R</b>	<b>I</b>	<b>P</b>	<b>Y</b>	<b>O</b>	<b>J</b>	<b>N</b>	<b>E</b>
-8	20	-17	16	2	-24	14	1	18	-14	-27	-7	8	-20	12	-6