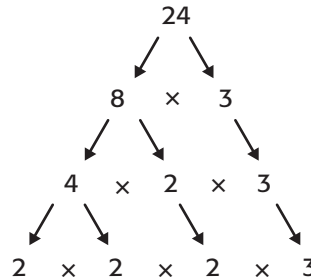
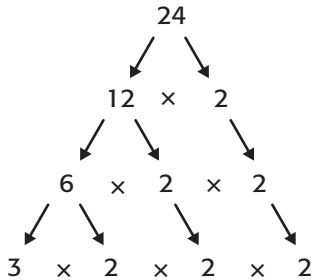


**Reteach****5NS1.4***Prime Factors*

You can make a factor tree to find the prime factors of a number.  
Here are two factor trees that show the prime factors of 24.



- A **prime** number has exactly two factors, 1 and itself.
- A **composite** number is a number greater than 1 with more than two factors.
- **0** and **1** are neither prime nor composite.

You get the same prime factors each way.

$$24 = 2 \times 2 \times 2 \times 3 \quad \longleftarrow \text{prime factorization}$$

**Tell whether each number is *prime*, *composite*, or *neither*. Find the prime factorization for the composite numbers.**

1. 15

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---

4. 25

---



---

2. 45

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5. 90

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3. 7

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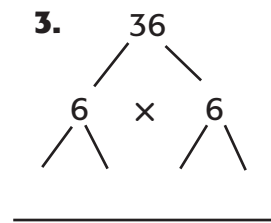
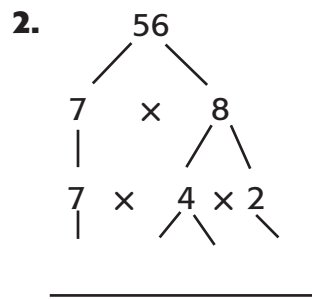
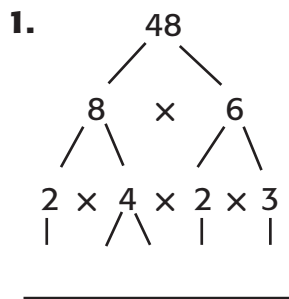
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6. 11

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**Skills Practice****5NS1.4***Prime Factors***Use a factor tree to find the prime factors of each number.****Find the prime factorization of each number. Tell whether each number is *prime*, *composite*, or *neither*.**

4. 1

\_\_\_\_\_

\_\_\_\_\_

5. 45

\_\_\_\_\_

\_\_\_\_\_

6. 18

\_\_\_\_\_

\_\_\_\_\_

7. 23

\_\_\_\_\_

\_\_\_\_\_

8. 39

\_\_\_\_\_

\_\_\_\_\_

9. 55

\_\_\_\_\_

\_\_\_\_\_

10. 28

\_\_\_\_\_

\_\_\_\_\_

11. 79

\_\_\_\_\_

\_\_\_\_\_

12. 62

\_\_\_\_\_

\_\_\_\_\_

**Solve.**

13. There are 24 students in Mrs. Green's class. The number of boys and the number of girls are both prime numbers. There are 2 more boys than girls. How many boys and how many girls are in the class?

\_\_\_\_\_

**Reteach****5NS1.3, 5NS1.4***Powers and Exponents*

Sometimes when you multiply, you use the same number as a factor more than once. You can use exponent form to show this.

↙ Write the number of times  
the factor is used as the *exponent*.

$$3 \times 3 \times 3 \times 3 \times 3 \times 3, = 3^6$$

↖ Write the factor as the base.

To write  $3 \times 3 \times 3 \times 3 \times 3 \times 3$ , or  $3^6$ , in standard form, multiply 3 six times.

$$3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^6 = 729$$

**Write each product using an exponent.**

**1.**  $4 \times 4 \times 4$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**2.**  $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**3.**  $10 \times 10 \times 10 \times 10$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**4.**  $5 \times 5$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**5.**  $3 \times 3 \times 3 \times 3 \times 3$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**6.**  $7 \times 7 \times 7 \times 7 \times 7$

Exponent Form: \_\_\_\_\_

What is the base? \_\_\_\_\_

What is the exponent? \_\_\_\_\_

**Skills Practice****5NS1.3, 5NS1.4***Powers and Exponents***Complete the table.**

	<b>Exponent</b>	<b>Product</b>
<b>1.</b>	$4^5$	
<b>2.</b>		$6 \times 6$
<b>3.</b>	$1^7$	
<b>4.</b>	$5^2$	
<b>5.</b>		$6 \times 6 \times 6 \times 6$
<b>6.</b>	$10^2$	
<b>7.</b>		$2 \times 2 \times 2 \times 2 \times 2 \times 2$
<b>8.</b>		$3 \times 3 \times 3$
<b>9.</b>	$8^2$	
<b>10.</b>	$4^1$	
<b>11.</b>		$5 \times 5 \times 5 \times 5$
<b>12.</b>		$10 \times 10 \times 10 \times 10 \times 10 \times 10$
<b>13.</b>		$7 \times 7 \times 7 \times 7$
<b>14.</b>	$2^3$	
<b>15.</b>	$9^1$	
<b>16.</b>	$3^4$	

**Problem Solving.****Solve.**

- 17.** There are 10 boxes of postcards. Each box contains 10 bundles of 10 postcards. How many postcards are there altogether? How do you write this number in exponent form?  
\_\_\_\_\_
- 18.** A school has a telephone system for letting families know about emergency school closings. The system is a pyramid with 5 layers. Three parents are on the top layer of the pyramid. Each parent in each layer calls three different parents. How many parents are in the chain?  
\_\_\_\_\_

**Reteach**

4AF1.2

*Order of Operations***You can use a phrase to help you remember the order of operations.**

<b>P</b> lease	<b>E</b> xcuse	<b>M</b> y	<b>D</b> ear	<b>A</b> unt	<b>S</b> ally
<b>P</b> arentheses	<b>E</b> xponents	<b>M</b> ultiply	<b>D</b> ivide	<b>A</b> dd	<b>S</b> ubtract

Evaluate.

$8^2 + (6 - 2) \times 5 - 10 \div 2$

**Step 1**    **P**arentheses

$8^2 + 4 \times 5 - 10 \div 2$

**Step 2**    **E**xponents

$64 + 4 \times 5 - 10 \div 2$

**Step 3**    **M**ultiply and **D**ivide from left to right.

$64 + 20 - 5$

**Step 4**    **A**dd and **S**ubtract from left to right.

$79$

**Find the value of each expression. Follow the steps in the order of operations.**

1.  $6^2 - 10 + 5 \times (2 - 1)$

$6^2 - 10 + 5 \times \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 10 + 5 \times \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - 10 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2.  $6 \times (9 - 4) + 3^2$

$6 \times \underline{\hspace{2cm}} + 3^2$

$6 \times \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

**Find the value of each expression.**

3.  $7 \times (3 + 9) = \underline{\hspace{2cm}}$

4.  $(12 + 3) - 2 + 3 \times 7 = \underline{\hspace{2cm}}$

5.  $3 \times 4^2 + 8 - 5 = \underline{\hspace{2cm}}$

6.  $100 + 10^2 \times (6 - 3) = \underline{\hspace{2cm}}$

7.  $36 \times 3 - 10 = \underline{\hspace{2cm}}$

8.  $5^2 \times 2 + 4 = \underline{\hspace{2cm}}$

9.  $6^2 \div (9 - 5) + 7 = \underline{\hspace{2cm}}$

10.  $25 - 2 \times 6 + 4^2 = \underline{\hspace{2cm}}$

11.  $9 \times (14 - 3) \div 3 = \underline{\hspace{2cm}}$

12.  $63 \div 9 + 2 \times 5 = \underline{\hspace{2cm}}$

**Skills Practice****4AF1.2***Order of Operations***Find the value of each expression.**

1.  $44 + 7 \times 3$  \_\_\_\_\_

2.  $48 \div (8 - 2)$  \_\_\_\_\_

3.  $(3 + 4) \times 8 \div 2$  \_\_\_\_\_

4.  $18 + 12 \div 2 + 3$  \_\_\_\_\_

5.  $4^2 \times 2 - 10$  \_\_\_\_\_

6.  $(6 \div 3) + (8 \times 5)$  \_\_\_\_\_

7.  $(3 + 2) \times 3^2$  \_\_\_\_\_

8.  $24 \div 6 \times 3 + 52$  \_\_\_\_\_

9.  $(2 \times 5) - (3 \times 3)$  \_\_\_\_\_

10.  $96 \div (3 \times 4) \div 2$  \_\_\_\_\_

11.  $100 - 8^2 + 4 \div 4$  \_\_\_\_\_

12.  $(200 - 50) \div (12 - 9)$  \_\_\_\_\_

13.  $47 + 3 \times 11 - 36 \div 3$  \_\_\_\_\_

14.  $(7 + 6) \times (7 - 3)$  \_\_\_\_\_

15.  $50 - (-4 + 1)^2 \div 9$  \_\_\_\_\_

16.  $6^2 - 9 \times 4 + (1 + 2)^2$  \_\_\_\_\_

**Solve.**

17. Tickets to the school play cost \$4 for adults and \$2 for students. If 255 adults and 382 students attended the play, write an expression that shows the total amount of money made on ticket sales. Then simplify the expression.

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18. At the school play, popcorn costs \$1 and juice costs \$2. Suppose 235 people buy popcorn and 140 people buy juice. Write an expression that shows the total amount of money made by selling refreshments. Then simplify the expression.

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**Reteach****5MR1.1, 4NS3.4***Problem-Solving Investigation*

The three tallest buildings in Boston are the Prudential Tower (750 ft), the John Hancock Tower (790 ft), and the Federal Reserve Building (604 ft). How much taller is the Prudential Tower than the Federal Reserve Building?

<b>Step 1</b> <b>Understand</b>	<p><b>Be sure you understand the problem.</b></p> <p>Read carefully. Identify what you need to do.</p> <ul style="list-style-type: none"> <li>• What do you know? _____</li> <li>• What have you been asked to do? _____</li> </ul>
<b>Step 2</b> <b>Plan</b>	<p>You can subtract the heights of the buildings.</p> <p><b>Plan a strategy.</b></p> <ul style="list-style-type: none"> <li>• Decide what actions you will take and in what order.</li> </ul>
<b>Step 3</b> <b>Solve</b>	<p><b>Solve the problem.</b></p> <p>Follow your plan.</p> <p>Subtract the height of the Federal Reserve Building from the height of the Prudential Tower.</p> $\begin{array}{r} 7\cancel{5}0 \\ - 604 \\ \hline 146 \end{array}$ <p>Prudential Tower is 146 feet taller than the Federal Reserve Building.</p>
<b>Step 4</b> <b>Check</b>	<p><b>Did you answer the question? Is the solution reasonable?</b></p> <p>Yes, you have found the difference in heights.</p>

**Solve. Use the four-step process.**

- Scotia Plaza in Toronto is 902 feet tall. First Canadian Place in Toronto is 978 feet tall. How much taller is First Canadian Place than Scotia Plaza?  
\_\_\_\_\_
- Dallas' Renaissance Tower is 886 feet, Bank of America Plaza is 921 feet, and Comerica Bank Tower is 787 feet. What is the total height of all 3 buildings?  
\_\_\_\_\_

**Reteach****5MR1.1, 4NS3.4***Problem-Solving Investigation (continued)*

3. The Andersons are buying a paddle boat for \$530. They plan to pay in four equal payments. How much will their payments be?
4. Lynn can walk two miles in 24 minutes. At this rate, how long will it take her to walk 6 miles?

\_\_\_\_\_

\_\_\_\_\_

5. Bridgit plays on the basketball team. The table shows the number of baskets she made in the first six days of practice. If the pattern continues, how many baskets will she make on the eighth day?
6. The Glendale Plaza Building in Glendale, California is 353 feet tall. The U.S. Bank Tower in Los Angeles, California is 1,017 feet tall. Which building is taller?

Day	Baskets
1	21
2	22
3	24
4	27
5	31
6	36
7	
8	

\_\_\_\_\_

7. After going on vacation, you come home with \$5. You spent \$6 on a pair of sunglasses, \$10 on snacks, \$4 on a book, and \$5 on arcade games. How much money did you start with?

\_\_\_\_\_



**Skills Practice****5MR1.1, 4NS3.4***Problem-Solving Investigation***Solve. Use the four-step plan.**

- The three highest mountains in Colorado are Mount Massive (14,421 ft), Mount Harvard (14,420 ft), and Mount Elbert (14,433 ft). How much taller is Mount Elbert than Mount Massive?  
\_\_\_\_\_
- Hoover Dam, in the United States, is 223 meters high. Ertan Dam, in China, is 240 meters high. In Canada, Mica Dam is 243 meters high. What is the total height of all three dams?  
\_\_\_\_\_
- The Akshi Kaikyo suspension bridge in Japan has a span of 6,570 feet. The Humber suspension bridge in England has a span of 4,626 feet. How much longer is the Humber suspension bridge than the Akshi Kaikyo suspension bridge?  
\_\_\_\_\_
- There are three long tunnels that go under Boston Harbor. The Sumner Tunnel is 5,653 feet long. The Callahan Tunnel is 5,070 feet long. The Ted Williams Tunnel is 8,448 feet long. What is the total length of all three tunnels?  
\_\_\_\_\_

**Use the data from the table for problems 5–6.**

<b>Land Tunnels in the United States</b>		
<b>Tunnel</b>	<b>State</b>	<b>Length (ft)</b>
Liberty Tubes	Pennsylvania	5,920
Devil's Side	California	3,400
E. Johnson Memorial	Colorado	8,959
Squirrel Hill	Pennsylvania	4,225

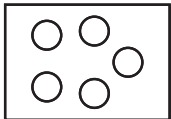
- Which tunnel is the longest?  
\_\_\_\_\_  
\_\_\_\_\_
- How much longer is the longest tunnel than Devil's Side tunnel?  
\_\_\_\_\_



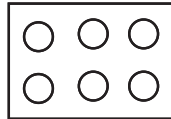
**Reteach****5AF1.2***Algebra: Variables and Expressions*

A box contains some baseballs. There are 2 baseballs on the ground. How many baseballs are there altogether?

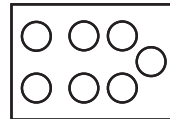
You can draw models to show the total number of baseballs if the box contains certain numbers of baseballs.



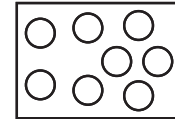
5 baseballs



6 baseballs



7 baseballs



8 baseballs

You can also write an algebraic expression to represent the total number of baseballs.

- The number of baseballs in the box changes, so represent it with the variable,  $b$ .
- The number of baseballs on the ground stays the same: 2.
- Add the number of baseballs in the box and the number on the ground to find the number of baseballs altogether.

So,  $b + 2$  represents the total number of baseballs.

Suppose there are 9 baseballs in the box.

$$b = 9$$

You can find the total number of baseballs

$$b + 2$$

by evaluating the expression.

$$9 + 2 = 11 \text{ baseballs}$$

**Complete the steps to write and evaluate an expression for the situation.**

1. Laura had 5 more hits than Susan. How many hits did Laura have?

What number changes? \_\_\_\_\_

Write a variable to represent the number that changes. \_\_\_\_\_

What number stays the same? \_\_\_\_\_

Write the number that stays the same. \_\_\_\_\_

What operation do you need to use to find the number of hits Laura had? \_\_\_\_\_

Write an expression to represent the number of hits Laura had. \_\_\_\_\_

Suppose Susan had 2 hits. Evaluate the expression. \_\_\_\_\_

2. The Mustangs scored  $m$  runs in the softball game. The Rangers scored 3 fewer runs than the Mustangs. How many runs did the Rangers get?
3. During the softball season, the Rangers won  $y$  games. They lost 4 more games than they won. How many games did the Rangers lose during the season?

**Skills Practice****5AF1.2***Algebra: Variables and Expressions***Complete the table.**

<b>Algebraic Expressions</b>	<b>Variables</b>	<b>Numbers</b>	<b>Operations</b>
<b>1.</b> $3 + m$			
<b>2.</b> $8x - 3$			
<b>3.</b> $5d + 2c$			

**Evaluate each expression if  $a = 3$  and  $b = 4$ .**

**4.**  $b + 8$  \_\_\_\_\_

**5.**  $a + b$  \_\_\_\_\_

**6.**  $b - a$  \_\_\_\_\_

**7.**  $10 + b$  \_\_\_\_\_

**8.**  $2a$  \_\_\_\_\_

**9.**  $4b$  \_\_\_\_\_

**10.**  $a \times b$  \_\_\_\_\_

**11.**  $7a \times 9b$  \_\_\_\_\_

**12.**  $8a - 9$  \_\_\_\_\_

**13.**  $b \times 2$  \_\_\_\_\_

**14.**  $a + 1$  \_\_\_\_\_

**15.**  $18 \div 2a$  \_\_\_\_\_

**16.**  $a^2 \times b^2$  \_\_\_\_\_

**17.**  $ab \div 3$  \_\_\_\_\_

**18.**  $15a - 4b$  \_\_\_\_\_

**Evaluate each expression if  $x = 7$ ,  $y = 15$ , and  $z = 8$ .**

**19.**  $x + y + z$  \_\_\_\_\_

**20.**  $x + 2z$  \_\_\_\_\_

**21.**  $xz$  \_\_\_\_\_

**22.**  $4x$  \_\_\_\_\_

**23.**  $z \div 4$  \_\_\_\_\_

**24.**  $6z - 5$  \_\_\_\_\_

**25.**  $9y$  \_\_\_\_\_

**26.**  $x^2$  \_\_\_\_\_

**27.**  $y + 4 \times 6$  \_\_\_\_\_

**28.**  $y^2$  \_\_\_\_\_

**29.**  $x^2 + 30$  \_\_\_\_\_

**30.**  $zx \div 4$  \_\_\_\_\_