Learning Objective: Students will be able to use formal language to describe a power and look at the specific case of perfect squares.

Warm Up

$56\overline{)2968}$ $94\overline{)3854}$

$84\overline{)8232}$ $33\overline{)792}$

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Warm Up Answers

$$56\overline{)2968} \quad 53$$

$$94\overline{)3854} \quad 41$$

$$84\overline{)8232} \quad 98$$

$$33\overline{)792} \quad 24$$

1.1 Record and Practice Journal

Find the value of the expression. Use estimation to check your answer.

1. $5947 + 2001$

   7948

2. $2587 + 1654$

   4241

3. $5684 + 3118$

   8802

4. $1596 - 302$

   1294

5. $9564 - 7581$

   1983

6. $7094 - 989$

   6105

7. $851 \div 37$

   23

8. $\frac{612}{68}$

   9

9. $8970 \div 345$

   26

10. $\frac{5424}{52}$

    104 R16 or $104\frac{4}{13}$

11. $8549 \div 198$

    43 R35 or $43\frac{35}{198}$

12. $74{,}386 \div 874$

    85 R96 or $85\frac{48}{437}$

13. Your family is traveling 345 miles to an amusement park. You have already traveled 131 miles. How many more miles must you travel to the amusement park?

    214 miles

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September 16 & 17, 2015

Lesson 1.2

Lesson 1.2

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Self-Evaluation Scale

Score	Description
4	I can teach other students how to use formal language to describe a power and look at the specific case of perfect squares.
3	I can use formal language to describe a power and look at the specific case of perfect squares.
2	I recognize, but still need help to use formal language to describe a power and look at the specific case of perfect squares.
1	I do not know how to use formal language to describe a power and look at the specific case of perfect squares.

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Activity 1, 2, & 3

With a partner, work on Activity 1, 2, & 3 on pages 7, 8, & 9 of your Big Ideas Record and Practice Journal.

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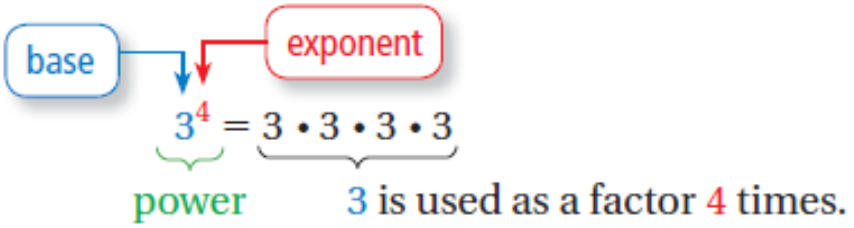
A **power** is a product of repeated factors. The **base** of a power is the repeated factor. The **exponent** of a power indicates the number of times the base is used as a factor.



Power	Words
3^2	Three *squared*, or three to the second
3^3	Three *cubed*, or three to the third
3^4	Three to the fourth

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1 Writing Expressions as Powers

Write each product as a power.

a. $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$

Because 4 is used as a factor 5 times, its exponent is 5.

∴ So, $4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 = 4^5$.

b. $12 \times 12 \times 12$

Because 12 is used as a factor 3 times, its exponent is 3.

∴ So, $12 \times 12 \times 12 = 12^3$.

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On Your Own

Write the product as a power.

1. $6 \cdot 6 \cdot 6 \cdot 6 \cdot 6 \cdot 6$

2. $15 \times 15 \times 15 \times 15$

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2 Finding Values of Powers

Find the value of each power.

a. 7^2

$7^2 = 7 \cdot 7$ Write as repeated multiplication.

$= 49$ Simplify.

b. 5^3

$5^3 = 5 \cdot 5 \cdot 5$

$= 125$

The square of a whole number is a **perfect square**.

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3 Identifying Perfect Squares

Determine whether each number is a perfect square.

a. 64

Because $8^2 = 64$, 64 is a perfect square.

b. 20

No whole number squared equals 20. So, 20 is not a perfect square.

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On Your Own

Find the value of the power.

3. 6^3
4. 9^2
5. 3^4
6. 18^2

Determine whether the number is a perfect square.

7. 25
8. 2
9. 99
10. 100

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Assignment

Complete problems 4, 5, 14, 15, 25, 26, 36, 37, & 38 on pages 14 & 15 in your Big Ideas Text Book.

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Essential Question How can you use repeated factors in real-life situations?

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Self-Evaluation Scale

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Homework

In your Big Ideas Record and Practice Journal page 10.