

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

$$56 \overline{)2968}$$

$$94 \overline{)3854}$$

$$84 \overline{)8232}$$

$$33 \overline{)792}$$

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 Answers

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

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

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

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

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

Lesson 1.2

September 11, 2015

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

Lesson 1.2

September 11, 2015

Lesson Objective:

Students will be able to:

use formal language to describe a power and look at the specific case of perfect squares.

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

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.

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

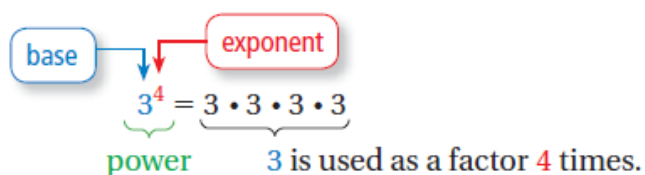
Activity 1, 2, & 3

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

Lesson 1.2

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

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.


$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3$$

power 3 is used as a factor 4 times.

Power	Words
3^2	Three <i>squared</i> , or three to the second
3^3	Three <i>cubed</i> , or three to the third
3^4	Three to the fourth

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

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

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

On Your Own

Write the product as a power.

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

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

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

2 Finding Values of Powers

Find the value of each power.

a. 7^2

$$7^2 = 7 \cdot 7$$

$$= 49$$

Write as repeated multiplication.

Simplify.

b. 5^3

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

$$= 125$$

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

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

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.

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

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

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

Assignment

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

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

Lesson 1.2

September 11, 2015

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

Lesson 1.2

September 11, 2015

Lesson Objective:

Students will be able to:

use formal language to describe a power and look at the specific case of perfect squares.

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

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.

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

Homework

In your Big Ideas Record and Practice
Journal page 10.