

[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

$$6 \overline{)1008}$$

$$8 \overline{)6200}$$

$$2 \overline{)662}$$

$$4 \overline{)1312}$$

$$3 \overline{)2277}$$

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# Warm Up Answers

$$\begin{array}{r} 168 \\ 6 \overline{)1008} \end{array}$$

$$\begin{array}{r} 775 \\ 8 \overline{)6200} \end{array}$$

$$\begin{array}{r} 331 \\ 2 \overline{)662} \end{array}$$

$$\begin{array}{r} 328 \\ 4 \overline{)1312} \end{array}$$

$$\begin{array}{r} 759 \\ 3 \overline{)2277} \end{array}$$

# Homework Answers

Good weekend?

**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 8, 9, 7, & 12, 2016

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

Lesson 1.2

September 8, 9, 7, & 12, 2016

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# Self-Evaluation Scale

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

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## Activity 1, 2, & 3

With a partner, work on Activity 1, 2, & 3 on pages 10, 11, & 12 of your Big Ideas Text Book.

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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.

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



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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.  $7^2$

$$7^2 = 7 \cdot 7 \quad \text{Write as repeated multiplication.}$$

$$= 49$$

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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# Homework

## Worksheet I.I Practice B