UNIT 4

Getting Ready

Write your answers on notebook paper.
Show your work.

1. Find the greatest common factor of 36 and 54.

2. List all the factors of 90.

3. Which of the following is equivalent to $39 \cdot 26 + 39 \cdot 13$?

A. 13^9 **B.** $13^4 \cdot 14$

C. $13^2 \cdot 3^2 \cdot 2$ **D.** $13^2 \cdot 3^2$

4. Identify the coefficient, base, and exponent of $4x^5$.

5. Explain two ways to evaluate $15(90 - 3)$.

6. Complete the following table to create a linear relationship.

x	2	4	6	8	10
y	3	5			

7. Graph the function described in the table in Item 6.

8. Use ratios to model the following:

a. 7.5

b. Caleb receives 341 of the 436 votes cast for class president.

Students in Mr. Bulluck's Class

Girls	Boys
12	19

c. girls to boys

d. boys to total class members

9. Tell whether each number is rational or irrational.

a. $\sqrt{25}$ **b.** $\frac{4}{3}$

c. 2.16 **d.** π

10. Calculate.

a. $\frac{1}{2} + \frac{3}{8}$ **b.** $\frac{5}{12} - \frac{1}{3}$

c. $\frac{3}{2} \cdot \frac{2}{5}$ **d.** $\frac{5}{8} \div \frac{3}{4}$

Exponent Rules

Icebergs and Exponents

Lesson 19-1 Basic Exponent Properties

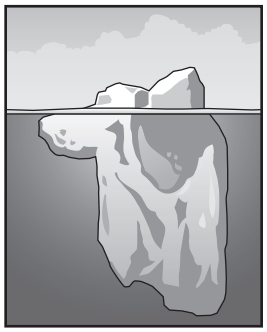
Learning Targets:

- Develop basic exponent properties.
- Simplify expressions involving exponents.

SUGGESTED LEARNING STRATEGIES: Create Representations, Predict and Confirm, Look for a Pattern, Think-Pair-Share, Discussion Groups, Sharing and Responding

An *iceberg* is a large piece of freshwater ice that has broken off from a glacier or ice shelf and is floating in open seawater. Icebergs are classified by size. The smallest sized iceberg is called a "growler."

A growler was found floating in the ocean just off the shore of Greenland. Its volume above water was approximately 27 cubic meters.



My Notes

CONNECT TO GEOLOGY

Because ice is not as dense as seawater, about one-tenth of the volume of an iceberg is visible above water. It is difficult to tell what an iceberg looks like underwater simply by looking at the visible part. Growlers got their name because the sound they make when they are melting sounds like a growling animal.

1. **Reason quantitatively.** Two icebergs float near this growler. One iceberg's volume is 3^4 times greater than the growler. The second iceberg's volume is 2^8 times greater than the growler. Which iceberg has the larger volume? Explain.

2. What is the meaning of 3^4 and 2^8? Why do you think **exponents** are used when writing numbers?

MATH TERMS

The expression 3^4 is a **power**. The **base** is 3 and the **exponent** is 4. The term **power** may also refer to the **exponent**.

3. Suppose the original growler's volume under the water is 9 times the volume above. How much of its ice is below the surface?

4. Write your solution to Item 3 using powers. Complete the equation below. Write the missing terms as a **power** of 3.

volume above water $\cdot\ 3^2 =$ volume below the surface

$\square \cdot 3^2 = \square$

5. Look at the equation you completed for Item 4. What relationship do you notice between the exponents on the left side of the equation and the exponent on the right?