



# MATH NEWS



LAFAYETTE  
PARISH SCHOOL SYSTEM

Grade 6, Module 4, Topic B

## 6<sup>th</sup> Grade Math

*Module 4: Expressions and Equations*

### Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. In Module 4, Topic B of Eureka Math (Engage New York), students differentiate between the product of two numbers and whole numbers with exponents. They differentiate between the two, through exploration of patterns, specifically noting how squares grow. Students also revisit order of operations adding exponents and parentheses to the order.



### Focus Area Topic B:

*Special Notations of Operations*

#### Words to Know:

**Exponent notation-** For any number  $a$ , we define  $a^m$  to be the product of  $m$  factors of  $a$ . For example,  $a^m$  means  $a \cdot a \cdot a \cdot \dots \cdot a$ ,  $m$  times.

**Base** – In the exponent notation,  $a^m$ ,  $a$  is the base.

**Exponent-** In the exponent notation  $a^m$ ,  $m$  is the exponent.

**Squared** – a number that is raised to the second power. (i.e.,  $5^2$ , we read this number 5 squared)

**Cubed** – a number that is raised to the third power. (i.e.,  $5^3$ , we read this number 5 cubed.)



#### Writing Numbers in Exponential Form:

##### Example and Solution:

What is the difference between  $3g$  and  $g^3$ ?

$3g$  means  $g + g + g$  and  $g^3$  means  $g \times g \times g$

### Focus Area Topic B:

*Special Notations of Operations*

#### Reading numbers written in exponential form:

##### Example and Solution:

How do you read the following numbers?

$5^2$  – We read as 5 squared

$5^3$  – We read as 5 cubed

$5^4$  – We read as 5 to the fourth power

$5^5$  – We read as 5 to the fifth power

$5^6$  – We read as 5 to the sixth power

Where 5 is the base and 6 is the superscript.

#### Writing and evaluating expressions written in exponential form.

##### Example and Solution:

Evaluate  $2^4 \times 3^2$ .

$$2^4 = 2 \times 2 \times 2 \times 2 = 16$$

$$3^2 = 3 \times 3 = 9$$

$$16 \times 9 = 144$$

The base number can also be written in decimal or fraction form.

Evaluate  $(\frac{3}{4})^3$

$$\frac{3}{4} \times \frac{3}{4} \times \frac{3}{4}$$

$$(\frac{3}{4})^3 = \frac{27}{64}$$

Evaluate  $(2.1)^2$

$$2.1 \times 2.1 = 4.41$$

#### Order of Operations:

When we evaluate expressions containing exponents, we evaluate numbers containing exponents first and then multiplication and division from left to right and addition and subtraction from left to right.

##### Example and Solution:

$$4 + 9^2 \div 3 \times 2 - 2$$

Exponents first  $9^2 = 9 \times 9$

Division next  $81 \div 3 = 27$

Multiplication next  $27 \times 2 = 54$

Addition next  $54 + 4 = 58$

Subtraction last  $58 - 2 = 56$

The final answer is 56.