#### **Do Now**

Evaluate

1. 
$$8 \cdot [6 \div (5-3)]^2$$

1. 
$$8 \cdot [6 \div (5-3)]^2$$
  $8 \cdot (6 \div (2))^2$   $8 \cdot (3)^2$ 

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# The Rules of Exponents

# **Powers and Exponents**

**Base** – The number that is used as a factor in repeated multiplication

**Exponent** – a number that represents how many times a base is used as a factor in repeated multiplication

**Power** – A product formed from repeated multiplication by the same number. A power consists of a base and an exponent

### Writing a Power as Repeated Multiplication

4 to the second power

Seven squared

$$\int_{0}^{2} = \int_{0}^{2} \int_$$

Nine cubed

8 to the power of five

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# 0 and 1 as Exponents

Any base raised to the 0 power equals 1

$$7^0 = 1$$

Any base raised to the 1 power equals the base  $8^1 = 8$ 

## **Evaluate:**

2) 
$$(xy)^0 = 1$$

3) 
$$(-2)^0 =$$

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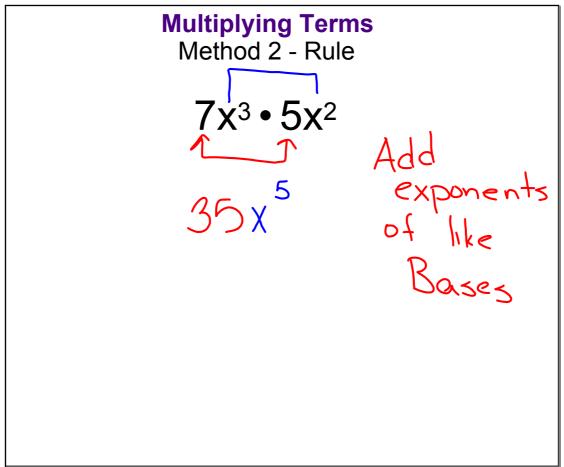
Method 1 - Expanding

$$7x^{3} \cdot 5x^{2}$$

$$7 \cdot x \cdot x \cdot x \cdot 5 \cdot x \cdot x$$

$$35x^{5}$$

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### **Multiplication Rule of Exponents**

$$X^a \cdot X^b = X^{a+b}$$

- 1) Multiply Coefficients
- 2) Add Exponents of the same base

