

# Announcements

Literal last call for MAPs and Word Problems Informal

- If you still have not taken the word problems informal, you will just take the new one on Wednesday

Tuesday ELA NC Check-Ins, Wednesday Math NC Check-Ins

Wednesday - Exponents Test, Word Problems Retake, Hidden Figures

- 3rd and 4th block special instructions

Friday - Ms. Barger will be in Chapel Hill

# Unit Map

~~Exponential Form and Simplifying Powers & Evaluating Expressions~~

~~Zero and Negative Exponents~~

Today → Multiplying and Dividing Powers & Power to a Power

Tomorrow → Exponents Review Day

Wednesday → Exponents Test, Word Problems Retake, Hidden Figures Work

# Multiplying and Dividing Powers and Power of a Power

2/4/2019

# Pull out your Exponents Foldable

This foldable will be used  
for this ENTIRE UNIT and  
also for the next unit!!

Please do not lose this!

Make sure your name is  
on it!

EXponents

M. Barger  
Block 3

Exponential Form and Simplifying Powers

Evaluating Expressions

Zero and Negative Exponents

Multiplying and Dividing Powers

$d^8$

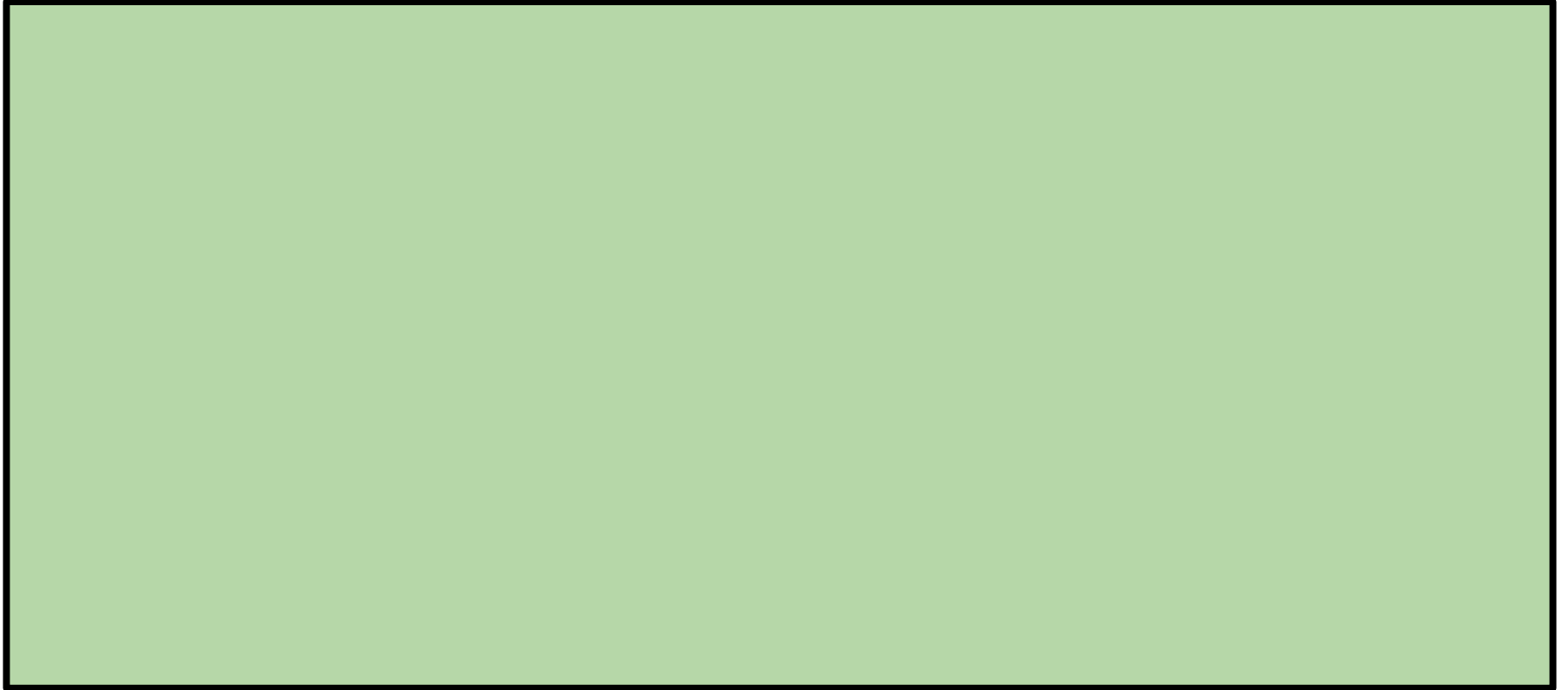
Power of a Power

Transforming Exponential Functions

Exponential Growth and Decay with Formulas

Scientific Notation Operations

# Multiplying and Dividing Powers



# Multiplying and Dividing Powers

\* You can always use the basic definition instead of the rules to simplify powers \*

Multiplying powers with the same base, ADD the exponents

Dividing powers with the same base, SUBTRACT the exponents

$$\text{Ex 1) } 5^4 \cdot 5^3 = 5^{4+3} = 5^7$$

$$\text{Ex 2) } 16^{-1} \cdot 16^7 = 16^{-1+7} = 16^6$$

$$\begin{aligned} \text{Ex 3) } 5hy^{-3} \cdot 7h^{-5}y^3 &= 5 \cdot 7 \cdot h^{1-5} \cdot y^{-3+3} \\ &= 35h^{-4}y^0 = \left(\frac{35}{h^4}\right) \end{aligned}$$

$$\text{Ex 4) } 4^2 \cdot 3^2 = 16 \cdot 9 = 144$$

$$\text{Ex 5) } \frac{6^9}{6^4} = 6^{9-4} = 6^5$$

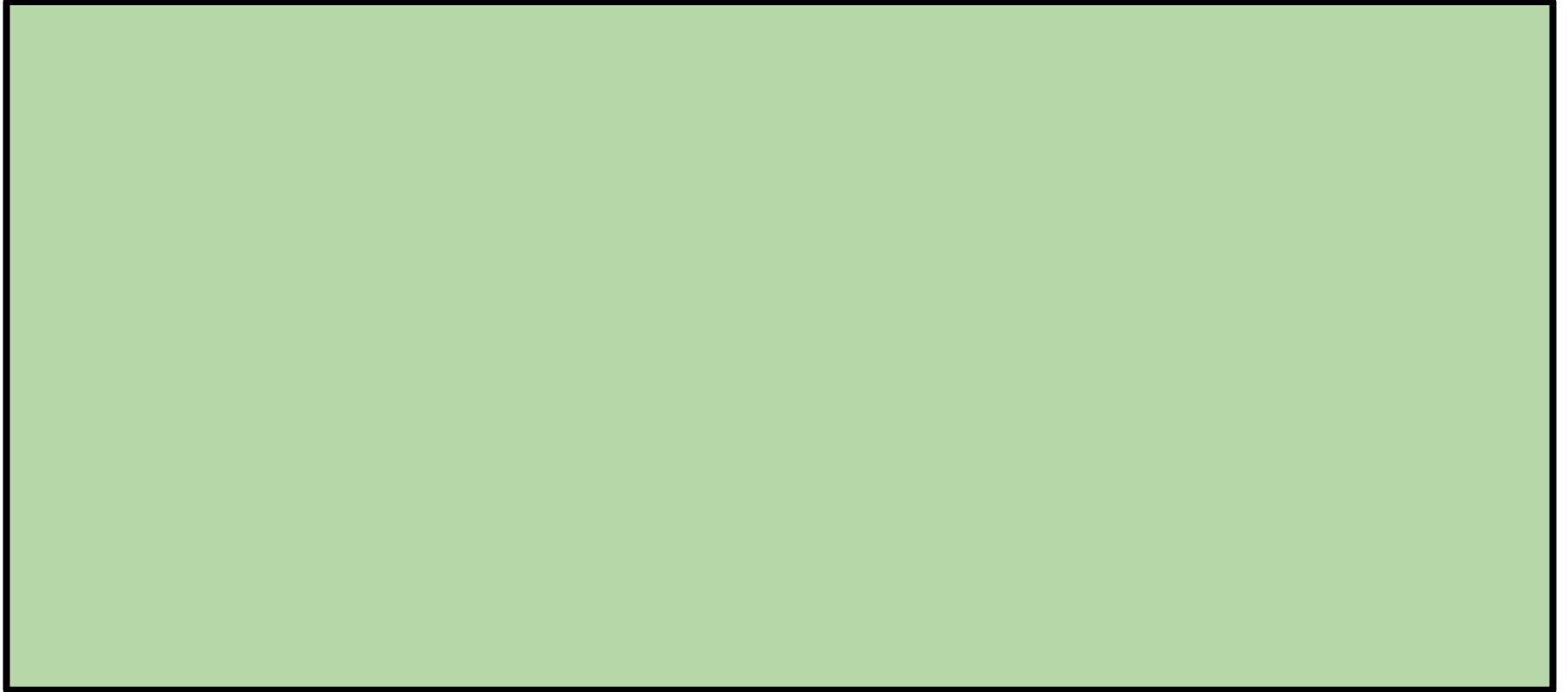
$$\text{Ex 6) } \frac{10^8}{10^5} = 10^{8-5} = 10^3$$

$$\text{Ex 7) } \frac{x^4}{x^9} = x^{4-9} = x^{-5} = \frac{1}{x^5}$$

$$\begin{aligned} \text{Ex 8) } \frac{4d^{-2}g^5}{2d^6g^{-4}} &= 2d^{-2-6}g^{5+4} = \\ &= 2d^{-8}g^9 = \frac{2g^9}{d^8} \end{aligned}$$

Multiplying and Dividing Powers

# Power of a Power



# Power of a Power

Power to a power you multiply the exponents

$$\text{EX1)} (9^4)^5 = 9^{4 \cdot 5} = 9^{20}$$

$$\text{EX2)} (b^m)^n = b^{mn}$$

$$\text{EX3)} (3m^4)^3 = 3^{1 \cdot 3} \cdot m^{4 \cdot 3} = 3^3 m^{12} = 27m^{12}$$

by definition:  $3m^4 \cdot 3m^4 \cdot 3m^4 = 27m^{12}$

$$\text{EX4)} (4a^2b^3)^2 = 4^{1 \cdot 2} \cdot a^{2 \cdot 2} \cdot b^{3 \cdot 2} = 4^2 a^4 b^6 = 16a^4b^6$$

$$\text{EX5)} \left(\frac{3a^{-2}}{4b^3}\right)^{-3} = \frac{(3^{-3})a^6}{(4^{-3})b^{-9}} = \frac{4^3 a^6 b^9}{3^3} = \frac{64a^6b^9}{27}$$

$$\text{EX6)} \left(\frac{6a^2b^6c^{-2}}{a^4}\right)^3 = \frac{6^3 a^6 c^{-6}}{a^{12}} = \frac{6^3 a^6}{a^{12} c^6} = \frac{6^3}{a^6 c^6} = \frac{216}{a^6 c^6}$$

Power of a Power



