### Algebra 1B Live Lesson

### U2L5 – Division Properties of Exponents (Chapter 7-5 in textbook)



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## Agenda



1. Review selected problems and topics from U2L4 (Chapter 7-5 in textbook). 2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

# **2-Column Notes Template**



- 1. Announcements/To Do's
- 2. School-Wide Learner Outcomes
- 3. LL Objectives
- 4. Vocabulary words
- 5. Problems
- 6. Summary (End of class)

- 1. Write down important details.
- 2. What are you going to work on this week?

- 4. Definitions (fill in as we go)
- 5. Steps to solving problems
- 6. 1 or 2 sentences about the LL class.

### **Reminders and To – Do's**



#### Information

1. Complete 1 math lesson per day.

2. Check your WebMail every day

3. Be prepared to spend 4 - 6 hours per day on schoolwork.

4. Remind your Learning Coach to take daily attendance

#### What to do

1. Go to your Planner in Connexus to find the math lesson for the day

2. Go to Connexus to find WebMail

3. Complete lessons for the day from your Planner. Do not get behind on lessons.

4. Have your Learning Coach log into Connexus daily.

### **Reminders and To – Do's**



#### Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

#### What to do

5. Link to Message Board:

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at: <u>https://elizondo.youcanbook.me</u>

Send a WebMail

# **U2L5 - Objectives**



- Divide powers with the same base
- Raise a quotient to a power

## **U2L5 - Vocabulary**



- Power
- Base
- Exponent
- Quotient

# **U2L5 – Introduction**



You can use repeated multiplication to simplify quotients of powers with the same base.

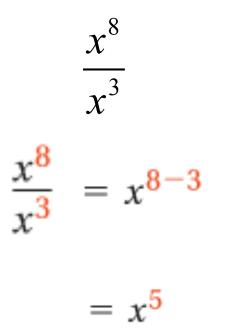
$$\frac{4^5}{4^3} = \frac{\cancel{4} \cdot \cancel{4} \cdot \cancel{4} \cdot \cancel{4}}{\cancel{4} \cdot \cancel{4} \cdot \cancel{4}} = 4^2$$



take note	Property	Dividing Powers With the Same Base	
Words	To divide powers with the same base, subtract the exponents.		
Algebra	$\frac{a^m}{a^n} = a^{m-n}$ , where $a \neq 0$ and <i>m</i> and <i>n</i> are integers		
Examples	$\frac{2^6}{2^2} = 2^{6-2} =$	$2^4 \qquad \frac{x^4}{x^7} = x^{4-7} = x^{-3} = \frac{1}{x^3}$	

### **U2L5 – Dividing Algebraic Expressions**

What is the simplified form of each expression?



 $\frac{m^2n^4}{m^5n^3}$  $\frac{m^2 n^4}{m^5 n^3} = m^2 - 5n^4 - 3$  $= m^{-3}n^{1}$  $=\frac{n}{m^3}$ 





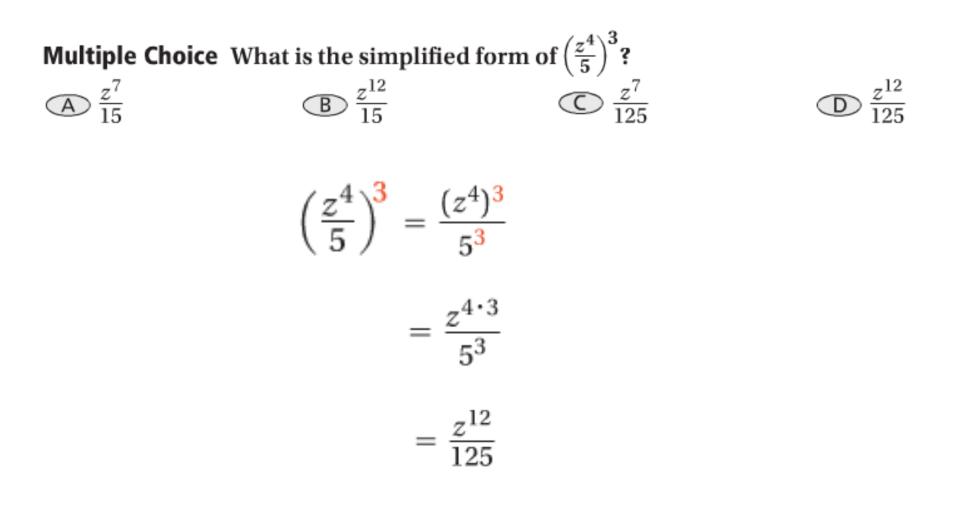
**Demographics** Population density describes the number of people per unit area. During one year, the population of Angola was  $1.21 \times 10^7$  people. The area of Angola is  $4.81 \times 10^5$  mi<sup>2</sup>. What was the population density of Angola that year?

$\frac{Number of people}{Unit Area} =$	$\frac{1.21\times10^7}{4.81\times10^5}$	$=\frac{1.21}{4.81} \times 10^{7-5}$
		$=\frac{1.21}{4.81} \times 10^2$
		$pprox 0.252  imes 10^2$
		= 25.2

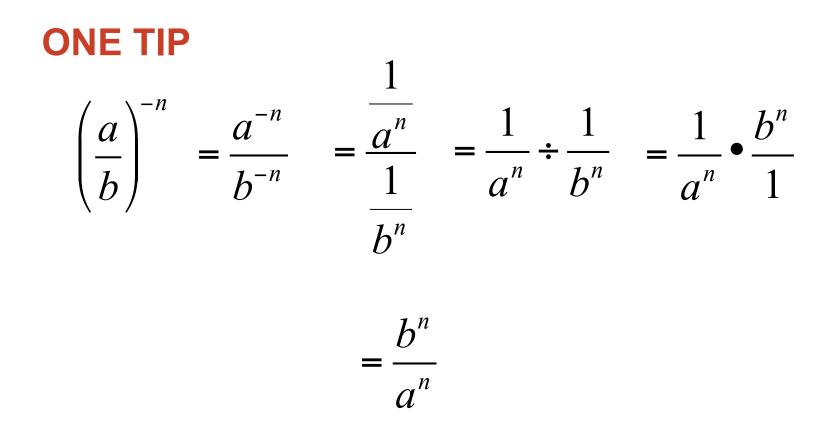


take note	Property Raising a Quotient to a Power		
Words	To raise a quotient to a power, raise the numerator and the denominator to the power and simplify.		
Algebra	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ , where $a \neq 0$ , $b \neq 0$ , and <i>n</i> is an integer		
Examples	$\left(\frac{3}{5}\right)^3 = \frac{3^3}{5^3} = \frac{27}{125}$ $\left(\frac{x}{y}\right)^5 = \frac{x^5}{y^5}$		









 $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$  for all nonzero numbers *a* and *b* and positive integers *n*.



 $\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$  for all nonzero numbers *a* and *b* and positive integers *n*.

What is the simplified form of  $\left(\frac{2x^6}{y^4}\right)^{-3}$ ?  $\left(\frac{2x^6}{y^4}\right)^{-3} = \left(\frac{y^4}{2x^6}\right)^3$  $=\frac{(y^4)^3}{(2x^6)^3}$  $=\frac{y^{12}}{2^3(x^6)^3} = \frac{y^{12}}{8x^{18}}$ 

## **Questions?**



- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <u>https://elizondo.youcanbook.me</u>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.