You will need a spiral or composition notebook and a pencil daily for class.

Tear out pages 293 - 328 and put in your 3-ring binder (if you have it)

Tabs for binder:

- 1. Forms
- 2. Textbook pages
- 3. Worksheets
- 4. Assessments

Oct 7-11:45 AM

Exponents and Scientific Notation



LESSON

10.1 Integer Exponents

Know and apply the properties of integer exponents to generate equivalent numerical expressions.

Fill in the table on page 297

Using Patterns of Integer Exponents

The table below shows powers of 5, 4, and 3.

$$\begin{bmatrix} 5^{4} = 625 & 5^{3} = 125 & 5^{2} = 25 & 5^{1} = 5 & 5^{0} = \boxed{1} & 5^{-1} = \boxed{\frac{1}{5}} & 5^{-2} = \boxed{\frac{1}{25}} \\ 4^{4} = 256 & 4^{3} = 64 & 4^{2} = 16 & 4^{1} = 4 & 4^{0} = \boxed{1} & 4^{-1} = \boxed{\frac{1}{4}} & 4^{-2} = \boxed{\frac{1}{16}} \\ 3^{4} = 81 & 3^{3} = 27 & 3^{2} = 9 & 3^{1} = 3 & 3^{0} = \boxed{1} & 3^{-1} = \boxed{\frac{1}{3}} & 3^{-2} = \boxed{\frac{1}{9}} \end{bmatrix}$$

- A What pattern do you see in the powers of 5?

 As the exponent decreases by 1, the value of the power is divided by 5.
- B What pattern do you see in the powers of 4?

 As the exponent decreases by 1, the value of the power is divided by 4.
- What pattern do you see in the powers of 3?
 As the exponent decreases by 1, the value of the power is divided by 3.

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Reflect

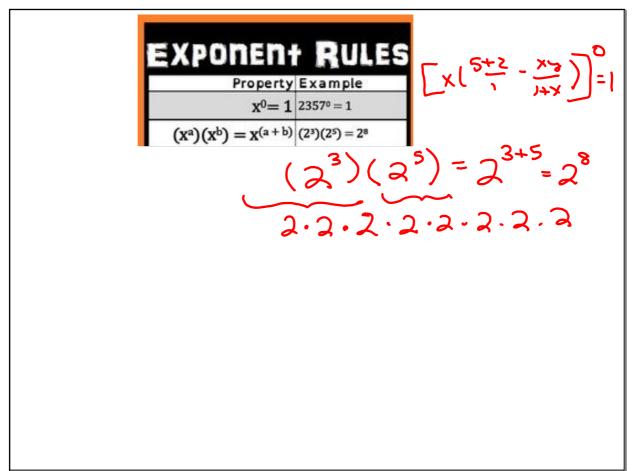
1. Make a Conjecture Write a general rule for the value of a^0 .

 $a^0 = 1$ $a^{-n} = \frac{1}{a^n}$

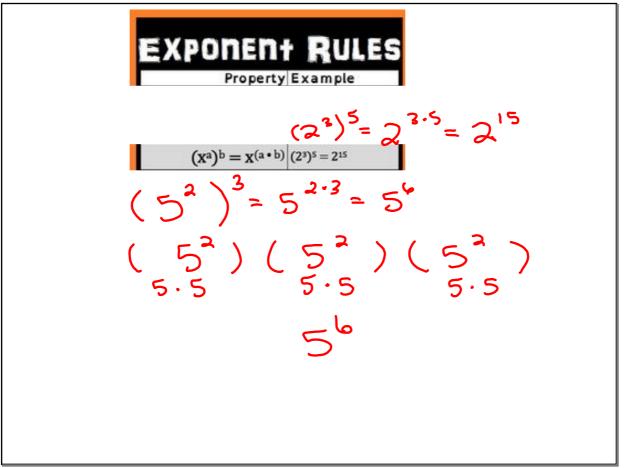
2. Make a Conjecture Write a general rule for the value of a^{-n} .

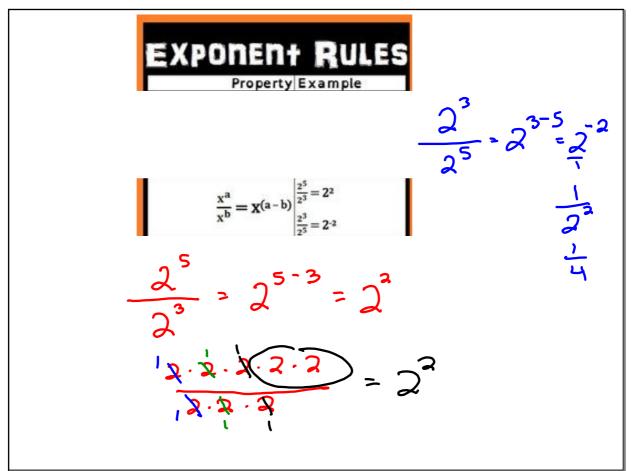
5 ⁴ = 625	5 ³ = 125	5 ² = 25	5 ¹ = 5	50 = 1	$5^{-1} = \boxed{\frac{1}{5}}$	$5^{-2} = \boxed{\frac{1}{25}}$
$4^4 = 256$	$4^3 = 64$	$4^2 = 16$	4 ¹ = 4	40 = 1	$4^{-1} = \boxed{\frac{1}{4}}$	$4^{-2} = \boxed{\frac{1}{16}}$
$3^4 = 81$	$3^3 = 27$	$3^2 = 9$	3 ¹ = 3	30 = 1	$3^{-1} = \boxed{\frac{1}{3}}$	$3^{-2} = \boxed{\frac{1}{9}}$



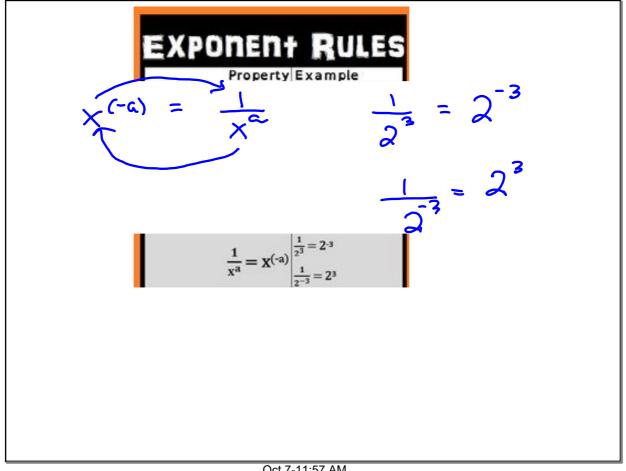


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Find the value of each power. (Explore Activity 1)

1. $8^{-1} =$ 2. $6^{-2} =$ 3. $256^0 =$ 4. $10^2 =$ 5. $5^4 =$ 6. $2^{-5} =$ 7. 3006. $2^{-5} =$

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Homework - Worksheet