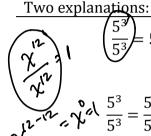
LEARNING OBJECTIVE: We will raise bases to the 0th power. (G8M1L4)

CONCEPT DEVELOPMENT:

Raising to the 0th power:

$$x^0 = 1$$

9 = 1 3× = 1



$$\frac{5^3}{5^3} = 5^{3-3} = 5^0$$

$$\frac{5^3}{5^3} = \frac{5 \cdot 5 \cdot 5}{5 \cdot 5 \cdot 5} = 1$$

$$x^3 \cdot x^0 = x^{3+0} = x^3,$$

so x^0 must be 1

Rewriting Numbers Using Powers of 10

Think about place value when rewriting numbers:

$$1 = 10^{0}$$
 $10 = 10^{1}$

$$100 = 10^2$$

$$1000 = 10^3$$

$$10,\!000 = 10^4$$

Example: $8,374 = (8 \times 10^3) + (3 \times 10^2) + (7 \times 10^1) + (4 \times 10^0)$

GUIDED PRACTICE:

Steps to Simplifying Exponents with Zero Exponents

- 1. Simplify all exponents.
- 2. Set numbers raised to the 0th power equal to one.

$\frac{y^{12}}{y^{12}}$	$\frac{6^{11}}{6^{11}}$
$(7(123.456789)^4)^0$	$(6x^3)^0$

Mr. Rogove

Date:____

Steps to Simplifying Exponents with Zero Exponents

- 1. Simplify all exponents.
- 2. Set numbers raised to the 0th power equal to one.

$\frac{4 \cdot \chi^{3} \cdot \sqrt{2}}{\chi^{3}} = \boxed{4}$	$\frac{-12y^4}{y^4}$ $\frac{y^9}{y^9} = y^9 = ($
$\frac{2^{5} \cdot \frac{1}{1^{2}} \cdot \frac{2^{2}}{1} \cdot \frac{1}{2^{5}}}{\frac{2^{5} \cdot 1 \cdot 2^{3} \cdot 1}{1 \cdot 2^{5}}} = \frac{2^{7}}{2^{7}} = 2^{9} = 1$	1 1 2 2 2

Steps for Rewriting Numbers using Powers of 10

1. Identify the place value of each number and multiply it by the appropriate power of 10.

6,906,174	326,103
$(5\times10^{7}) + (3\times10^{6}) + (9\times10^{5}) + (1\times10^{4}) + (5\times10^{3}) + (2\times10^{2}) + (7\times10^{1}) + (8\times10^{0})$	$(4\times10^4) + (5\times10^3) + (3\times10^2) + (9\times10^1) + (8\times10^0)$

NAME:	Math, Period	
Mr. Rogove	Date:	

INDEPENDENT PRACTICE:

ACTIVATING PRIOR KNOWLEDGE:

We know the rules for multiplying and dividing exponents

75	103 1010 102
$7x^5$	$12^3 \cdot 12^{10} \cdot 12^2$
$\overline{7x^3}$	
$/x^{3}$	

CLOSURE:

Hand out exit Ticket

TEACHER NOTES:

Fluency sprint toward the end. Need to make copies!!