Name: _____ Date: _____

Teacher: _____ Section: _____

AlgebraByExample

Assignment 6.4

multiple properties of exponents

For each set, first examine the problem on the left and answer the question(s) about it. Then complete the similar problem on the right.

SET 1: Write the following expressions in **simplest form**. SHOW ALL OF YOUR WORK.

Maya simplified this expression **correctly**.
Here is her work:

$(3ab^{-5})^2$

$(3ab^{-5})^2$

$9a^2b^{-10}$

$\frac{9a^2}{b^{10}}$

- Where did the 9 come from in Maya's expression?
- The original expression did not contain a fraction. Why did Maya's answer contain a fraction?

Your Turn:

$(5a^{-3}b)^2$

SET 2: Write the following expressions in **simplest form**. SHOW ALL OF YOUR WORK.

Riyo simplified this expression **correctly**.
Here is his work:

$\frac{2^3 \cdot 3}{2 \cdot 3^3}$

$\frac{2^3 \cdot 3}{2 \cdot 3^3}$

$\frac{2^2}{3^2}$

$\frac{4}{9}$

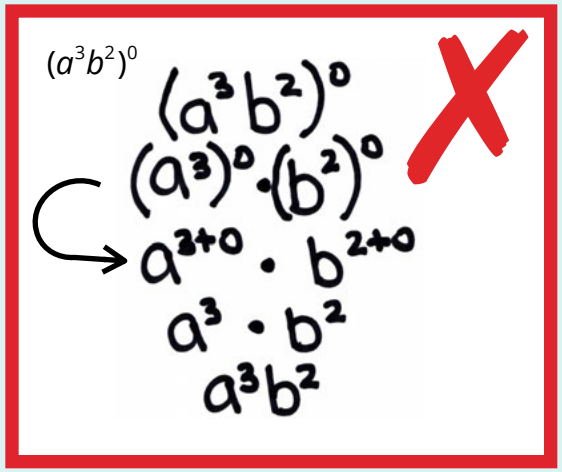
- Could Riyo have multiplied the base numbers first and then simplified? Why or why not?

Your Turn:

$\frac{2^2 \cdot 3^2}{3^5 \cdot 2}$

SET 3: Write the following expressions in **simplest form**. SHOW ALL OF YOUR WORK.

Julian **didn't** simplify this expression correctly.
Here is his work:



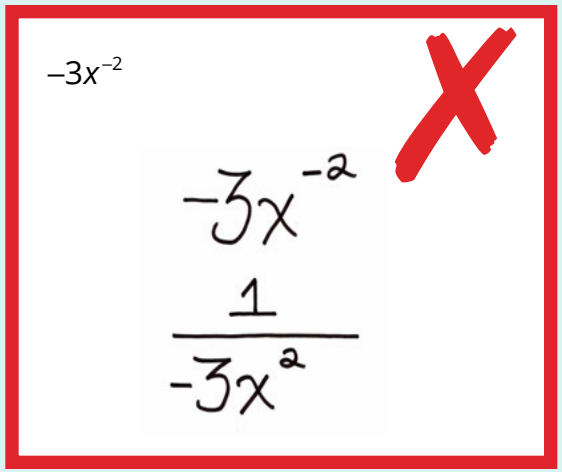
- Julian made a mistake in the step that is marked with an arrow. What operation should he have used for the exponents instead?
- Julian could have figured out the correct answer without showing any work. What rule about the power of zero did Julian forget?

Your Turn:

$(c^0b^{-3})^2$

SET 4: Write the following expressions in **simplest form**. SHOW ALL OF YOUR WORK.

Kelly **didn't** simplify this expression correctly.
Here is her work:



- The –3 should have stayed in the numerator in order for Kelly's final answer to be correct. Why does the –3 belong in the numerator?

Your Turn:

$(-2c)^{-4}$