Date: _____

Bell Work

Evaluate each of the following by following the correct order of operations. Show your work, but use your calculator to check your steps.

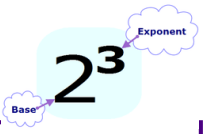
1) $$\frac{[5^2 - (-3)(-9) + 2] - 6}{2^4 - 3^2}$$

2) $$\left(-\frac{5}{9} \div \frac{2}{3}\right) - (-2 - 4 \times 5) + \left(-\frac{1}{3}\right)^3$$

Please submit your answers as a PDF on Edsby.

Date: _____

3.2 Working with Exponents



As we discussed earlier in this course, exponents represent repeated multiplication. As we build on what you already know, it is important for you to remember:

- that an exponent means repeated multiplication of the base NO MATTER WHAT THE BASE IS! It can be a fraction, a variable, an algebraic term, a measurement, etc.
- to apply the appropriate order of operations in ALL situations. Exponents are often found in formulas and equations, and BEDMAS always applies!!

An Important Note About BEDMAS:

As previously discussed, you MUST do division and multiplication in the order they appear from left to right. That means that BEMDAS is also correct.

Also, you MUST add and subtract in the order that they appear from left to right (or remember that the sign in front of a number is attached to it). That means that BEDMSA or BEMDSA is also correct.

Brackets (simplify the stuff inside the brackets as much as possible)

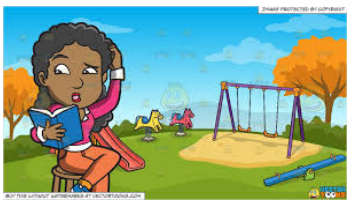
Exponents (apply exponents to the base they are attached to)

Divide/Multiply (in the order they appear, left to right)

Add/Subtract (in the order they appear, left to right)

One More Practice Problem:

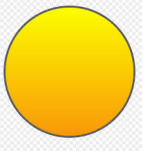
Evaluate $[-3 + (-7)]^2 \div [(-5)(4)] - (-2)^3 + [- 13 - (-4)]({}^2/_3)^2$



Applications of Exponents

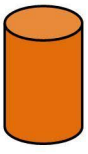
Exponents are often used to model growth (populations) and decay (half-life), as well as in formulas to find area, surface area and volume of certain two and three dimensional shapes and figures.

Example 1: Find the area of a circle with a radius of 3 cm.



Example 2: Find the volume of a sphere with a radius of 3 cm.

Example 3: Find the volume of a cylinder with a radius of 3 cm and a height of 6 cm.



Example 4: Complete the table below that shows the growth of a burger shop. Each day the number of customers doubles.

Day	New Customers	Expanded Form	Power
1	2	2	
2	4	2 x 2	
3			
4			

If the restaurant is open 7 days a week, how many new customers should they expect on day 7? Day 14?

Does this level of growth seem realistic? Explain.