

## **Bell Work:**

**Using a half sheet of paper (share the other half with someone around you), answer the 4 questions below.**

- 1. What is Mr. Petry's school email address?**
- 2. What is Mr. Petry's school telephone number?**
- 3. What is the penalty when late assignments are handed in?**
- 4. If you bring a drink to class, what must it have?**

# Chapter 1

## Foundations of Functions

In this chapter, you will...

Use properties of exponents,

Determine if a number relationship is a function, and

Use functional notation.

In this lesson you will multiply and divide monomials.

$$12a^3b^2c^5(4a^6b^2c^4) =$$

$$\frac{12a^3b^2c^5}{4a^6b^2c^4} =$$

**Multiplying monomials:**

$$d^3(d^5) = d^8$$

$$k^4(j^3)(j^2k) = j^5k^5$$

$$(x^3y^4z)(x^3y^6z^2) = x^6y^{10}z^3$$

**What is a monomial?**

*A number and/or one or more variables*

**What is the rule for multiplying monomials?**

*Add the exponents.*

**Multiplying monomials:**

$$-6a^4bc^2(5a^2b^3c^2) = -30a^6b^4c^4$$

$$4f^2gh^3(-8f^{-3}h)(-3f^4h^{-5}) = 96f^3gh^{-1} = \frac{96f^3g}{h^1}$$

*Move negative exponents.*

$$\begin{aligned} -u^3v^3w^{-2}(8u^{-2}vw^4)(-3u^{-7}v^{-5}w^6) &= 24u^{-6}v^{-1}w^8 \\ &= \frac{24w^8}{u^6v} \end{aligned}$$

**Dividing monomials:**

$$\frac{r^7}{r^3} = r^4$$

$$\frac{g^2 h^8}{g^6 h} = g^{-4} h^7 = \frac{h^7}{g^4}$$

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

**What is the rule for dividing monomials?**

*Subtract the exponents.*

## Dividing monomials:

$$\frac{-24a^2b^{11}}{6a^7b^6} = -4a^{-5}b^5 = \frac{-4b^5}{a^5}$$

*The -4 doesn't move because it is a coefficient, not an exponent.*

$$\frac{-12c^6d^{11}e}{-48c^6d^6e^5} = \frac{1c^0d^5e^{-4}}{4} = \frac{d^5e}{4e^4}$$

$$c^0 = 1$$

*Anything to the 0 power = 1.*

$$\frac{72p^{-4}q^4r^3}{32p^3q^{-2}r^3} = \frac{9p^{-7}q^6r^0}{4} = \frac{9q^6}{4p^7}$$

**Make the problem.**

**You have to make the problem, using at least 2 negative exponents, to equal the answer.**

*There are infinitely many problems, but here are 2.*

$$\begin{aligned}
 36a^3b^6c^5 &= (6a^{-2}b^2c^8)(6a^5b^4c^{-3}) \\
 &= (4a^{-6}b^{-4}c^{-1})(9a^9b^{10}c^6)
 \end{aligned}$$

*There are infinitely many problems, but here are 2.*

$$\frac{f^6h^4}{5g^3} = \frac{4f^4g^{-4}h^7}{20f^{-2}g^{-1}h^3} = \frac{6f^{-2}gh^2}{30f^{-8}g^4h^{-5}}$$



**What is the rule for multiplying monomials?**

**Multiply the coefficients.**

**Add the exponents.**

**What is the rule for dividing monomials?**

**Divide the coefficients.**

**Subtract the exponents.**

**Negative Exponents:**

**Move them and make the positive.**

## **Assignment:**

### **Properties of Exponents A Worksheet**