

Exponent Properties

$$1) x^3 \cdot x^5 = x^8 \quad (x \cdot x \cdot x)(x \cdot x \cdot x \cdot x \cdot x)$$

$$2) 3x^2y \cdot x^3 = 3x^5y \quad (3 \cdot x \cdot x \cdot y)(x \cdot x \cdot x)$$

Multiplication

$$x^m \cdot x^n = x^{m+n}$$

When multiplying like bases,
add the exponents.

$$1) \frac{3v^2 \cdot 4v^3}{12v^5}$$

$$2) \frac{3p^2q^2 \cdot (-2p^5)}{-6p^7q^2}$$

$$3) \frac{2r^{-1} \cdot r^4}{2r^3}$$

$$4) \frac{3n^{-3} \cdot 2n^2}{6n^{-1}}$$

$$\frac{6n^{-1}}{1} \rightarrow$$

$$5) \frac{3x^{-1}y^3 \cdot 4x^2y^4}{12xy^7}$$

$$6) \frac{n \cdot 3m^{-4} \cdot n^{-4}}{3m^4n^3}$$

Division

$$1) \frac{x^7}{x^4} = x^3$$

$$\frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot x}{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}$$

$$x^{7-4} = x^3$$

or

$$x^7 \cdot x^{-4} = x^3$$

$$2) \frac{x^9}{x^5} = x^4$$

$$\frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot x \cdot x}{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}$$

$$x^{9-5} = x^4$$

Division Rule

$$\frac{x^m}{x^n} = x^{m-n}$$

when dividing, subtract the exponents

$$1) \frac{10y^3}{2y^6}$$

$$\frac{5y^3}{5y^3}$$

$$\frac{5}{y^3}$$

$$2) \frac{6m^{-4}}{3m^{-2}n}$$

$$\frac{2m^{-4-(-2)}}{n}$$

$$\frac{2m^{-2}}{n} = \frac{2}{m^2n}$$

$$3) \frac{4x^3y^{-1}}{yx^4}$$

$$\frac{4x^{3-4}y^{-1-1}}{4x^{-1}y^{-2}}$$

$$\frac{4}{xy^2}$$

Zero Power

$$x^0 = 1$$

$$(xy)^0 = 1$$

$$3x^0y = 3(1)y \\ = 3y$$

* Anything to the zero power is 1.

Hw Pg 11 even
Pg 12 even