10/6/17

Product/Quotient of Powers

Multiplying Powers with like bases...

1. Multiply Coefficients
2. Add exponents that have the same base
3. Write answer as <u>one</u> expression.

Ex) $6x \cdot 4x^2$

1. $6 \cdot 4 = 24$
2. Add: $x^{1+2} = x^3$
3. Combine: $\boxed{24x^3}$

Ex) $7x^4y \cdot 3y^5x^6 \cdot 2y$

1. $7 \cdot 3 \cdot 2 = 42$
2. $x^{4+6} = x^{10}$

   $y^{1+5+1} = y^7$
3. $\boxed{42x^{10}y^7}$

Ex) $\left(\frac{1}{9}\right)^4 \cdot \left(\frac{1}{9}\right)^5 \cdot \left(\frac{1}{9}\right)$

Add exponents: $\left(\frac{1}{9}\right)^{4+5+1} = \boxed{\left(\frac{1}{9}\right)^{10}}$

Dividing Powers with like bases...

① Divide Coefficients (if possible)

② Subtract exponents

③ Move negative exponents to top/bottom and make positive.

Ex) $\frac{9a^4}{3a}$

① $\frac{9}{3} = 3$

② a^{4-1}

③ $\boxed{3a^3}$

Ex) $\frac{5c^5d}{3c^3d^2}$

① $\frac{5}{3}$ → does not reduce

② $c^{5-3} = c^2$

$d^{1-2} = d^{-1}$

③ $\boxed{\frac{5c^2}{3d}}$