



$$1. r^{-2} * r^{-2} * r^{-4}$$

$$2. n^{-4} * n^{-4} * n^{-6}$$

## Product Rule

IF

- Same base?
- Keep base
- Add Exponents

~~\*~~ Every Term Must  
have an Exponent!!

$$x^4 \cdot x^2 \cdot x^3 \cdot x^1 = x^{4+2+3+1} = x^{10}$$

$$2 \cdot x^3 \cdot x^2 \cdot x =$$

$$2^1 \cdot x^3 \cdot x^2 \cdot x^1 = 2x^{3+2+1} = 2x^6$$

$$(2^0 \cdot x^3 \cdot y^4 \cdot z^1)^0$$
$$2^{1 \cdot 0} \cdot x^{3 \cdot 0} \cdot y^{4 \cdot 0} \cdot z^{1 \cdot 0}$$

$$2^0 \cdot x^0 \cdot y^0 \cdot z^0$$

$$1 \cdot 1 \cdot 1 \cdot 1 = 1$$

$$x^{-2} \Rightarrow \begin{array}{|c|c|} \hline x^{-2} & 1 \\ \hline 1 & x^2 \\ \hline \end{array}$$

Rule: No Negative Exponents in the Answer!  
 E.G.

$$2x^{-3} \Rightarrow 2 \cdot x^{-3} \Rightarrow 2 \cdot \begin{array}{|c|} \hline x^{-3} \\ \hline 1 \\ \hline \end{array} = 2 \cdot \begin{array}{|c|} \hline 1 \\ \hline x^3 \\ \hline \end{array} = \frac{2}{x^3}$$

$$x^2 y^{-3} \Rightarrow \begin{array}{|c|c|} \hline x^2 & y^{-3} \\ \hline 1 & 1 \\ \hline \end{array} \Rightarrow \begin{array}{|c|} \hline x^2 \\ \hline y^3 \\ \hline \end{array} = \frac{x^2}{y^3}$$

$$x^4 y^3 z^{-6} \Rightarrow \frac{x^4 y^3}{z^6}$$

Let  
Kamal =  $K^3$ , Crawford =  $C^{-2}$

$$K^3 \cdot C^{-2} = \frac{K^3}{C^2}$$

1) Where do they start?  
(what floor)

2) Does anyone have to move?

Top	$K^3$	$C^{-2}$
Bottom		1

$K^3$
$\rightarrow 1 \cdot C^2$

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

$$\frac{x^6}{y^{-6}}$$



$x^6$
$y^{-6}$

 $=$ 

$x^6 y^6$
1

$= x^6 y^6$

Do NOT MOVE POSITIVE EXponents

$$\frac{x^{-6}}{y^{-3}}$$



$x^{-6}$
$y^{-3}$

 $=$ 

$y^3$
$x^6$

$= \frac{y^3}{x^6}$

$$x^{-3}y^{-6} = \begin{array}{|c|} \hline x^{-3}y^{-6} \\ \hline 1 \\ \hline \end{array} \rightarrow \begin{array}{|c|} \hline 1 \\ \hline x^3y^6 \\ \hline \end{array}$$

$$\frac{x^3y^{-6}}{x^3y^6} = \begin{array}{|c|} \hline x^3y^{-6} \\ \hline x^3y^6 \\ \hline \end{array} = \begin{array}{|c|} \hline x^3z^2 \\ \hline y^6 \\ \hline \end{array}$$

$$\frac{x^4 y^2 z^{-4}}{x^2 y^{-4} z^2} = \frac{x^2 y^2 y^4}{z^4 \cdot z^2} = \boxed{\frac{x^2 y^6}{z^6}}$$

$$\boxed{\frac{x^4}{x^2}} \cdot \boxed{\frac{y^2}{y^{-4}}} \cdot \boxed{\frac{z^{-4}}{z^2}}$$

So....

$$x^2 \cdot y^{2+4} \cdot \frac{1}{z^{2+4}}$$