

Division Property of Exponents

$$\frac{x^6}{x^3} = \frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}{\cancel{x} \cdot \cancel{x} \cdot \cancel{x}} = x^3$$

The diagram illustrates the division property of exponents using a visual representation of the fraction $\frac{x^6}{x^3}$. The numerator x^6 is shown as six 'x' characters, and the denominator x^3 is shown as three 'x' characters. Three pairs of 'x' characters are crossed out with green diagonal lines, representing the cancellation of the common factors. The remaining three 'x' characters in the numerator are circled in green, and the result x^3 is also circled in green.

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

Notice $7 - 3 = 4$

$$\boxed{\frac{7k^4}{k^6}} = \frac{\cancel{7k \cdot k \cdot k \cdot k}}{\cancel{k \cdot k \cdot k \cdot k \cdot k \cdot k}} = \frac{7}{k \cdot k} = \frac{7}{k^2}$$

$$\frac{6d^3 \cdot d^2}{d^8} = \frac{6d \cdot d \cdot d \cdot d \cdot d}{d \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d} = \frac{6}{d \cdot d \cdot d} = \frac{6}{d^3}$$

$$\frac{6r^4 y^6}{4r^7 y^2} = \frac{\cancel{6}r \cdot r \cdot r \cdot r \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}{2r \cdot r \cdot r \cdot r \cdot r \cdot r \cdot r \cdot y \cdot y} = \frac{3y^4}{2r^3}$$

notice how $\frac{6}{4}$ was simplified to $\frac{3}{2}$

$$\frac{8w^3y^2}{4w^7y^2} = \frac{2w \cdot w \cdot w \cdot y \cdot y}{w \cdot w \cdot w \cdot w \cdot w \cdot w \cdot y \cdot y} = \frac{2}{w^4}$$

8 divided by 4 is 2!

Get white boards and practice on your own!
You need a marker, eraser, and white board.

$$1. \frac{x^6}{x^2} =$$

$$2. \frac{3r^5}{r^9} =$$

$$3. \frac{6n^3}{2n^2} =$$

$$4. \frac{8p^5s^8}{6p^3s^{10}} =$$

Kahoot!!

**When done with Kahoot, do
problems 1-20 on the worksheet**