Multiplication Properties of Exponents

1. When multiplying things with the same base - ADD EXPONENTS
2. When raising a power to a power - MULTIPLY EXPONENTS
3. When raising a product to a power - apply the power to all things inside the parentheses

Simplify each:

1. $(-4A^{-6}B^{4})^{2}$

$16A^{-4}B^{6} = \frac{B^{6}16}{A^{12}}$

2. $\frac{(2E^{-2}D^{4})^{3}}{(6E^{5}D^{-2})^{-2}}$

$\frac{(8E^{-6}D^{12})}{(E^{-10}D^{4})}$

$\frac{36}{8E^{-16}D^{16}}$

$\frac{2D^{16}}{9E^{16}}$

3. $\left(\frac{12^{-1}P^{-4}Q^{3}}{4^{-2}P^{5}Q^{-7}}\right)^{-2}$

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$\frac{16Q^{3}Q^{7}}{12P^{4}P^{5}}$

$\left(\frac{4Q^{10}}{3P^{9}}\right)^{-2} = \left(\frac{3P^{9}}{4Q^{10}}\right)^{2} = \frac{9P^{18}}{16Q^{20}}$

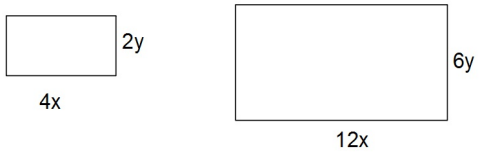
3. $\left(\frac{12^{-1}P^{-4}Q^{3}}{4^{-2}P^{5}Q^{-7}}\right)^{-2}$

$\frac{12^{2}P^{8}Q^{-6}}{4^{4}P^{-10}Q^{14}}$

$\frac{144P^{8}P^{10}}{256Q^{6}Q^{14}}$

$\frac{9P^{18}}{16Q^{20}}$

The dimensions of one rectangle are three times that of another rectangle. How many times greater is the area of the large rectangle compared to the area of the smaller rectangle?



1. Write an expression for the area of each rectangle.

small rect: A = $8xy$ large rect: A = $72xy$

2. How many times greater is the area of the large rectangle?

9 TIMES