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Get rid of parenthesis  
Negative exponents are fractions  
Clean it up  
multiply  
divide/reduce  
evaluate

Date \_\_\_\_\_  
Algebra II



## Negative Exponents

Reduce each of the following and express with positive exponents

1.  $\frac{14x^{-2}y^3}{-8x^{-5}y^5}$

~~$\frac{14x^{-2}y^3}{-8x^{-5}y^5}$~~

2.  $\frac{x^2y^{-3}}{x^{-3}y^{-2}}$

$\frac{x^2x^3y^2}{y^3}$  multiply  
divide

~~2.~~  $\frac{74y^3}{-8x^2y^5} \left( -\frac{7x^3}{2y^2} \right)$

~~3.~~  $(3y)^2 (3zy^4)^{-2}$

$(3^2y^2)(3^{-2}z^{-2}y^{-8})$

$\frac{3^2y^2}{3^2z^2y^8} \left( \frac{1}{z^2y^6} \right)$

~~4.~~  $(x^2y)^{-2}$

$x^{-4}y^{-2}$

$\frac{y^3}{x^4y^2x^2}$  multiply  
divide

5. Which expression is equivalent to  $x^{-1} \cdot y^2$ ?

1)  $xy^2$

3)  $\frac{x}{y^2}$

$\frac{y^2}{x^1}$

~~2)  $\frac{y^2}{x}$~~

4)  $xy^{-2}$

~~$\frac{y}{x^4}$~~

6. Which expression is equivalent to  $\frac{x^{-1}y^4}{3x^{-5}y^{-1}}$ ?

1)  $\frac{x^4y^5}{3}$

3)  $3x^4y^5$

$\frac{y^4x^5y}{3x}$

$\frac{y^5x^4}{3}$

2)  $\frac{x^5y^4}{3}$

4)  $\frac{y^4}{3x^5}$

7. The expression  $\frac{a^2b^{-3}}{a^{-4}b^2}$  is equivalent to

1)  $\frac{a^6}{b^5}$

3)  $\frac{a^2}{b}$

2)  $\frac{b^5}{a^6}$

4)  $a^{-2}b^{-1}$

$\frac{a^2b^4}{b^3b^2} \quad \frac{a^6}{b^5}$

Simplify the following expressions

$$8. \frac{2x^{-2}y^{-2}}{4y^{-5}}$$

$$\frac{12y^5}{24x^2y^2}$$

$$\frac{y^3}{2x^2}$$

$$9. (5^{-2}a^3b^{-4})^{-1}$$

$$\frac{5a^{-3}b^4}{1}$$

$$\frac{5^2b^4}{a^3}$$

$$\frac{25b^4}{a^3}$$

$$10. \frac{(3x^{-2}y^2)^2}{9x^{-3}y^{-3}}$$

$$\frac{3^2x^{-4}y^4}{9x^{-3}y^{-3}} \quad \frac{3^2y^4x^3y^3}{9x^4}$$

$$\frac{9y^7x^3}{9x^4} = \frac{y^7}{x}$$

$$11. \frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}}$$

$$\frac{3x^{-4}y^5}{2^{-2}x^{-6}y^{14}}$$

$$\frac{3y^52^2x^6}{x^4y^{18}}$$

$$\frac{12x^2}{y^4}$$

$$12. \frac{(4x^{-2})^{-2}}{(2x^2)(2y)^{-3}}$$

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

$$\frac{x^42^3y^3}{4^2(2)x^2}$$

$$\frac{18x^4y^3}{432x^2}$$

$$13. \frac{(2x^{-3})^{-3}}{16(x^2y^{-1})^{-2}}$$

$$\frac{2^{-3}x^9}{16x^{-4}y^2} \quad \frac{x^4x^4}{16^3y^2}$$

$$\frac{x^{13}}{128y^2}$$

$$14. \frac{(2xy^2)^{-2}}{(8x^{-2}y)^{-1}(2y^2)^2}$$

$$\frac{2^{-2}x^{-2}y^{-4}}{8^{-1}x^2y^{-1}2^{-2}y^{-4}}$$

$$\frac{8^1y^12^2y^4}{2^2x^2y^4x^2}$$

$$\frac{32y^5}{4x^4y^4} \quad \left(\frac{8^1}{x^4}\right)$$

$$15. \frac{(3x^2y^{-2})^2}{(2x^2y^{-1})^2(3x^{-5})}$$

$$\frac{3^2x^4y^{-4}}{(2^2x^4y^{-2})(3x^{-5})} \quad \frac{3^2x^4y^2x^5}{y^42^2x^43}$$

$$\frac{3^9x^9y^2}{418x^4y^4} \quad \left(\frac{3x^5}{4y^2}\right) \quad 9$$