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Algebra II

## *Negative Exponents*

Reduce each of the following and express with positive exponents

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

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

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

4.  $\frac{(x^2y)^0}{(x^3y^0)^{-3}}$

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

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

3)  $3x^4y^5$

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

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

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

(1)  $xy^2$       (3)  $\frac{x}{y^2}$

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

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

8. Which expression is equivalent to  $\frac{2x^{-2}y^{-2}}{4y^{-5}}$ ?

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

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

9. Which expression is equivalent to  $(3x^2)^{-1}$ ?

1)  $\frac{1}{3x^2}$       3)  $\frac{1}{9x^2}$

2)  $-3x^2$       4)  $-9x^2$

10. The expression  $(2a)^{-4}$  is equivalent to

1)  $-8a^4$       3)  $\frac{1}{16a^4}$

2)  $\frac{16}{a^4}$       4)  $\frac{1}{16a^4}$

11. Which expression is equivalent to  $(5^{-2}a^3b^{-4})^{-1}$ ?

1)  $\frac{10b^4}{a^3}$       3)  $\frac{a^3}{25b^4}$

2)  $\frac{25b^4}{a^3}$       4)  $\frac{a^2}{125b^5}$

12. Simplify the expression  $\frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}}$  and write the answer using only positive exponents.

13. Simplify the expression  $\frac{(3x^{-2})^0}{(2x^2)(2y)^{-3}}$  and write your answer using a positive exponent.