

Name: \_\_\_\_\_ Show work needed to justify your answer. Date: \_\_\_\_\_

**HW # 45:** Algebra 1 - Standard 27 - Negative and Zero Exponents

5 points

**Simplify each expression. Assume that no denominator equals zero.**

Final answers must have positive exponents only.

1.  $\frac{r^6 n^{-7}}{r^4 n^2}$   
 $\frac{r^2}{n^9}$

2.  $\frac{h^3}{h^{-6}}$   
 $h^9$

3.  $\frac{f^{-7}}{f^4}$   
 $\frac{1}{f^{11}}$

4.  $\left(\frac{16p^5 w^2}{2p^3 w^3}\right)^0$   
 $1$

5.  $\frac{f^{-5} g^4}{h^{-2}}$   
 $\frac{g^4 h^2}{f^5}$

6.  $\frac{15x^6 y^{-9}}{5xy^{-11}}$   
 $\frac{3x^5 y^{11}}{y^9} = 3x^5 y^2$

7.  $\frac{-15u^{-1}}{5u^3}$   
 $\frac{-3}{u^4}$

8.  $\frac{(z^2 w^{-1})^3}{(z^3 w^2)^2}$   
 $\frac{z^6 w^{-3}}{z^6 w^4} = \frac{1}{w^7}$

9.  $\frac{-10m^{-1} r}{-14m^{-7} y^{-3} r^{-4}}$   
 $\frac{5m^7 y^3 r^5}{7m}$

10.  $\frac{51x^{-1} y^3}{17x^2 y}$   
 $\frac{3y^2}{1x^3}$

11.  $\frac{3m^{-3} r^4 p^2}{12t^4}$   
 $\frac{1r^4 p^2}{4m^3 t^4}$

12.  $\left(\frac{3t^6 u^2 v^5}{9tuv^{21}}\right)^0$   
 $1$

13.  $\frac{x^{-4} y^9}{z^{-2}}$   
 $\frac{y^9 z^2}{x^4}$

15.  $\frac{p^4 t^{-3}}{r^{-2}}$   
 $\frac{p^4 r^2}{t^3}$

17.  $\frac{-2f^3 g^2 h^0}{8f^2 g^2}$   
 $\frac{-1f}{4}$