Name Pe Hier Period _____ Date _____

Simplifying Monomials Homework

Directions: Simplify each expression. The final answer should contain whole number coefficients and positive exponents.

1. $\frac{3xy^4 \cdot 7x^8}{12x^9}$

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

$= \boxed{\frac{7y^4}{4}}$

2. $\frac{28x^{10}y^5}{(2x^3)^2} = \frac{28x^{10}y^5}{4x^6}$

$= \boxed{7x^4y^5}$

3. $\frac{180x^9y^3z^6}{18xy^4z^6}$

$= \boxed{\frac{10x^8}{y}}$

4. $\frac{-3(x^3)^4}{81x^{10}} \cdot (-3x^4)^2$

$= \frac{-3x^{12}}{81x^{10}} \cdot 9x^8$

$= \boxed{\frac{-x^{10}}{3}}$

5. $\left(\frac{5x^{15}y^{12}}{20x^{10}y^5}\right)^3$

$= \left(\frac{x^5y^7}{4}\right)^3$

$= \boxed{\frac{x^{15}y^{21}}{64}}$

6. $\left(\frac{(5x^4y)^2}{50x^4}\right)^4$

$= \left(\frac{25x^8y^2}{50x^4}\right)^4$

$= \left(\frac{x^4y^2}{2}\right)^4$

$= \boxed{\frac{x^{16}y^8}{16}}$

7. $\left(\frac{(x^7y^3)^2}{-3x^8}\right)^4 \cdot (-3x^8)$

$= \left(\frac{x^{14}y^6}{-3x^8}\right)^4 \cdot (-3x^8)$

$= \left(\frac{-x^6y^6}{3}\right)^4 \cdot (-3x^8)$

$= \frac{x^{24}y^{24}}{81} \cdot -3x^8$

$= \boxed{\frac{-x^{32}y^{24}}{27}}$

8. $\left(\frac{7x^5y^{10}}{15x^{10}y^{12}}\right)^5 \cdot \left(\frac{10x^8y^{10}}{14y^3}\right)^5$

$= \left(\frac{7x^5y^{10} \cdot 10x^8y^{10}}{15x^{10}y^{12} \cdot 14y^3}\right)^5$

$= \left(\frac{x^3y^5}{3}\right)^5$

$= \boxed{\frac{x^{15}y^{25}}{243}}$

9. $\left(\left(\frac{7x^5y^{10}}{xy^{20}}\right) \cdot \left(\frac{6y^8}{21x^3}\right)\right)^3$

$= \left(\frac{2x^5y^{18}}{x^4y^{20}}\right)^3$

$= \left(\frac{2x}{y^2}\right)^3$

$= \boxed{\frac{8x^3}{y^6}}$