Name Key Block _____ Date _____

Division of Monomials Raised to a Power

Simplify each monomial. Show your work/thinking; all final answers must have positive exponents.

1. $\left(\frac{2x^4y^{12}}{y^{10}}\right)^3$

$(2x^4y^2)^3$

$8x^{12}y^6$

2. $\left(\frac{4x^7y^{20}}{xy^{18}}\right)^3$

$(4x^6y^2)^3$

$64x^{18}y^6$

3. $\left(\frac{10x^7y^{20}}{5x^{10}y^{18}}\right)^3$

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

$\frac{8y^6}{x^9}$

4. $\left(\frac{18x^{13}y^{17}}{12x^{12}y^{12}}\right)^3$

$\left(\frac{3xy^5}{2}\right)^3$

$\frac{27x^3y^{15}}{8}$

5. $\left(\frac{7x^{11}y^5}{14x^{11}y^{25}}\right)^3$

$\left(\frac{1}{2y^{20}}\right)^3$

$\frac{1}{8y^{60}}$

6. $\left(\frac{-2x^{22}y}{6x^{30}y^5}\right)^3$

$\left(\frac{-1}{3x^8y^4}\right)^3$

$\frac{-1}{27x^{24}y^{12}}$

7. $\left(\frac{44x^{23}y^{84}}{66x^{20}y^{87}}\right)^3$

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

$\frac{8x^9}{27y^9}$

8. $\left(\frac{420x^{108}y^{15}z^3}{840x^{112}y^4z^6}\right)^5$

$\left(\frac{y^{11}}{2x^4z^3}\right)^5$

$\frac{y^{55}}{32x^{20}z^{15}}$

9. $\left(\frac{x^{47}y^{20}}{-2x^{45}y^{20}}\right)^4$

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

$\frac{x^8}{16}$

10. $\left(\frac{-25x^{118}y^{112}}{5x^{114}y^{115}}\right)^2$

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

$\frac{25x^8}{y^6}$

11. $\left[\left(\frac{24y^{18}z^5}{18x^2y^{20}}\right)\cdot\left(\frac{15x^{10}y^4}{20z^2}\right)\right]^3$

$\left(x^8y^2z^3\right)^3$

$x^{24}y^6z^9$

12. $\left[\left(\frac{18x^{32}y^{58}}{5x^{37}y^{32}}\right)\cdot\left(\frac{-25x^4}{9y^{10}}\right)\right]^4$

$\left(\frac{-10y^{16}}{x}\right)^4$

$\frac{10{,}000x^{64}}{x^4}$