A block Homework

1. $\dfrac{(5x^3y^5)^2}{2x^{-2}by^2} = \dfrac{25x^6y^{10}}{2x^{-2}by^2} = \boxed{\dfrac{25x^8y^8}{2b}}$

2. $\dfrac{30(x^5b^2)^{-3}}{3y^{-7}x^{-1}z^4} = \dfrac{30x^{-15}b^{-6}}{3y^{-7}x^{-1}z^4}$

$= \dfrac{10xy^7}{x^{15}b^6z^4} = \boxed{\dfrac{10y^7}{b^6x^{14}z^4}}$

3. $\dfrac{15^{-2}x^8a^4d^{12}}{3^{-2}b^{10}x^{15}d^6} = \dfrac{3^2}{15^2}\cdot\dfrac{x^8a^4d^{12}}{b^{10}x^{15}d^6}$

$= \left(\dfrac{3}{15}\right)^2\cdot\dfrac{a^4d^6}{b^{10}x^7}$

$= \left(\dfrac{1}{5}\right)^2\cdot\dfrac{a^4d^6}{b^{10}x^7} = \boxed{\dfrac{a^4d^6}{25b^{10}x^7}}$

4. $\left(\frac{7a^{-6}d^5}{d^3a^3e^{-4}}\right)^{-2} = \left(\frac{7d^2e^4}{a^6 \cdot a^3}\right)^{-2}$

$= \left(\frac{7d^2e^4}{a^9}\right)^{-2}$

$= \left(\frac{a^9}{7d^2e^4}\right)^{2} = \boxed{\frac{a^{18}}{49d^4e^8}}$

5. $\frac{(12a^{-6}b^4)^3 z^4}{4a^9b^{-10}z^2} = \frac{12^3a^{-18}b^{12}z^4}{4a^9b^{-10}z^2}$

$= \frac{1728\, b^{10} \cdot b^{12} \cdot z^4}{4a^9 \cdot a^{18} \cdot z^2}$

$= \boxed{\frac{432\, b^{22}z^2}{a^{27}}}$