

Division Properties of Exponents

$$\frac{a^m}{a^n} = a^{m-n} \quad \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

What is the simplified form of each expression?

$$\textcircled{1} \frac{x^5}{x^2} = \frac{\cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot x}{\cancel{x} \cdot \cancel{x}} = x^{5-2} = \boxed{x^3} \quad \textcircled{2} \frac{y^{\frac{3}{4}}}{y^{\frac{1}{2}}} = y^{\frac{3}{4} - \frac{1}{2}} = \boxed{y^{\frac{1}{4}}}$$

$$\textcircled{3} \frac{k^6 j^2}{k j^5} = k^{6-1} j^{2-5} = k^5 j^{-3} = \boxed{\frac{k^5}{j^3}} \quad \textcircled{4} \frac{x^4 y^{-1} z^8}{x^4 y^{-5} z} = \frac{\cancel{x^4} y^{-1} z^8}{\cancel{x^4} y^{-5} z} = \boxed{y^4 z^7}$$

⑤ What is $1.21 \times 10^7 \div 4.81 \times 10^5$ in standard notation?

$$\frac{1.21 \times 10^7}{4.81 \times 10^5} = \frac{1.21}{4.81} \times 10^{7-5} = .252 \times 10^2 = \boxed{25.2}$$

What is the simplified form?

$$\textcircled{6} \left(\frac{z^{\frac{2}{3}}}{5}\right)^3 = \boxed{\frac{z^2}{125}} \quad \textcircled{7} \left(\frac{2x^6}{y^4}\right)^{-3} = \frac{(y^4)^3}{(2x^6)^3} = \boxed{\frac{y^{12}}{8x^{18}}}$$