

# The Quotient Rule of Exponents

Simplify.

$$x^0 = 1$$

$$\textcircled{1} \quad \frac{25y^6x^0}{10y^2} = \frac{\cancel{5} \cdot 5 \cdot \boxed{\overset{\textcircled{6}}{y^6}} \cdot \boxed{\overset{\textcircled{0}}{x^0}}}{\cancel{5} \cdot 2 \cdot \boxed{\overset{\textcircled{2}}{y^2}}} = \frac{5y^4 \cdot 1}{2} = \frac{5y^4}{2}$$

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

$$\textcircled{3} \quad \frac{\boxed{\overset{\textcircled{9}}{b^9}} \cdot \boxed{\overset{\textcircled{10}}{x^{10}}}}{\boxed{\overset{\textcircled{7}}{b^7}} \cdot \boxed{\overset{\textcircled{2}}{x^2}} \cdot \boxed{\overset{\textcircled{2}}{z^2}}} = \frac{b^2x^8}{z^2}$$

$$\textcircled{4} \quad \frac{30a^4b^5}{50a^2b^7} = \frac{3a^2}{5b^2}$$

$$\textcircled{5} \quad \frac{8m^4x^9}{16m^2x^{11}} = \frac{\boxed{\overset{\textcircled{4}}{m^4}} \cdot \boxed{\overset{\textcircled{9}}{x^9}}}{\boxed{\overset{\textcircled{2}}{m^2}} \cdot \boxed{\overset{\textcircled{11}}{x^{11}}}} = \frac{m^2}{2x^2}$$