

# HOMEWORK 5.1 & 5.2

## QUIZ ①

SIMPLIFY AND WRITE ALL ANSWERS USING ONLY POSITIVE EXPONENTS

$$\textcircled{1} \quad 3x^0 + 2^{-1} + 3^{-2} = 3 \cdot 1 + \frac{1}{2} + \frac{1}{3^2} = \frac{12}{3} + \frac{1}{2} + \frac{1}{9} = \frac{54 + 9 + 2}{18} = \boxed{\frac{65}{18}}$$

$$\textcircled{2} \quad \frac{x^{-2}y}{xy^{-2}} = x^{-2-1}y^{1-(-2)} = x^{-3}y^3 = \boxed{\frac{y^3}{x^3}}$$

$$\textcircled{3} \quad \frac{(ab^{-2})^{-1}}{(a^2b^{-1})^3} = \frac{a^{-1}(b^{-2})^{-1}}{(a^2)^3(b^{-1})^3} = \frac{a^{-1}b^2}{a^6b^{-3}} = a^{-1-6}b^{2-(-3)} = a^{-7}b^5 = \boxed{\frac{b^5}{a^7}}$$

$$\textcircled{4} \quad \left( \frac{u^2v^{-3}}{u^{-3}v^{-4}} \right)^2 = \left( u^{2-(-3)}v^{-3-(-4)} \right)^2 = (u^5v)^2 = (u^5)^2v^2 = \boxed{u^{10}v^2}$$

$$\textcircled{5} \quad x^3 - x^3 = \boxed{2x^3}$$

$$x^3 \cdot x^3 = x^{3+3} = \boxed{x^6}$$

$$(x^3)^3 = x^{3 \cdot 3} = \boxed{x^9}$$

$$\frac{x^2}{x^3} = \boxed{1}$$

$$x^3(-x^3) = -x^{3+3} = \boxed{-x^6}$$