

## Quiz 5

**Question 1.** (10 marks) Simplify the following expressing the answers with positive exponents only:

$$\begin{aligned} \text{(a)} (-5a^2b^3)(2a^{-2}b^{-4}) &= -10a^{2+(-2)}b^{3+(-4)} \\ &= -10a^0b^{-1} \\ &= -\frac{10}{b} \end{aligned}$$

$$\begin{aligned} \text{(b)} \left( \frac{4x^{-1}y^{-40}}{2^{-2}x^4y^{-10}} \right) &= \frac{4 \cdot 2^2 y^{10}}{x x^4 y^{40}} = \frac{16 y^{10}}{x^5 y^{40}} \\ &= \frac{16}{x^5 y^{30}} \end{aligned}$$

$$\begin{aligned} \text{(c)} \frac{(-2xy^{-3})^{-3}}{(xy^{-1})^{-1}} &= \frac{(-2)^{-3} x^{-3} (y^{-3})^{-3}}{x^{-1} (y^{-1})^{-1}} = \frac{(-2)^{-3} x^{-3} y^9}{x^{-1} y^1} \\ &= \frac{x y^9}{(-2)^3 x^3 y} = \frac{x y^9}{-8 x^3 y} \\ &= -\frac{y^8}{8 x^2} \end{aligned}$$