

## Notes 9.5 Properties of Exponents

$$(x^a)^b = x^{a \cdot b}$$

$$(\cancel{5}^3)^4 = \cancel{5}^3 \cdot \cancel{5}^3 \cdot \cancel{5}^3 \cdot \cancel{5}^3 = \cancel{5}^{12}$$

$$\left(\frac{x}{y}\right)^b = \frac{x^b}{y^b}$$

$$\left(\frac{2}{7}\right)^3 = \frac{2}{7} \cdot \frac{2}{7} \cdot \frac{2}{7} = \frac{2^3}{7^3}$$

$$(xy)^a = x^a y^a$$

$$(\cancel{x} \cdot \cancel{y})^3 = (\cancel{x} \cdot \cancel{y})(\cancel{x} \cdot \cancel{y})(\cancel{x} \cdot \cancel{y}) = \cancel{x}^3 \cdot \cancel{y}^3$$

$$(x^a \cdot y^b)^c = x^{a \cdot c} \cdot y^{b \cdot c}$$

$$(84 \cdot 5^2)^3 = (84 \cdot 5^2)(84 \cdot 5^2)(84 \cdot 5^2) = 84^3 \cdot 5^6$$