

Laws of Indices:

(a ≠ 0, b ≠ 0)

$$1 \quad (a)^0 = 1 \qquad (4)^0 = 1$$

$$2 \quad a^m \times a^n = a^{m+n} \qquad 2^3 \times 2^5 = 2^{3+5} = 2^8$$

$$3 \quad a^m \div a^n = a^{m-n} \qquad 2^5 \div 2^2 = 2^{5-2} = 2^3$$

$$4 \quad (a^m)^n = a^{mn} \qquad (4^2)^3 = 4^{2 \times 3} = 4^6$$

$$5 \quad (ab)^n = a^n b^n \qquad (6 \times 4)^2 = 6^2 \times 4^2$$

$$6 \quad (a)^{-n} = \frac{1}{a^n} \qquad (2)^{-3} = \frac{1}{2^3}$$

$$7 \quad a^{\frac{1}{n}} = \sqrt[n]{a} \qquad 7^{\frac{1}{4}} = \sqrt[4]{7}$$

$$8 \quad a^{\frac{m}{n}} = \sqrt[n]{a^m} \qquad 2^{\frac{3}{4}} = \sqrt[4]{2^3}$$

$$9 \quad \left(\frac{a}{b}\right)^n = \frac{a^n}{b^n} \qquad \left(\frac{4}{5}\right)^2 = \frac{4^2}{5^2}$$