

Indices Revision

Rules

$$1) x^p \times x^q = x^{p+q}$$

$$2) x^p \div x^q = x^{p-q}$$

$$3) (x^p)^q = x^{p \times q}$$

$$4) x^1 = x$$

$$5) x^0 = 1$$

$$6) x^{-p} = \frac{1}{x^p}$$

$$7) x^{\frac{1}{p}} = \sqrt[p]{x}$$

$$8) x^{p/q} = (\sqrt[q]{x})^p \text{ or } \sqrt[q]{x^p}$$

Exercise

$$1) 2x^2 \times 3x^3 = 6x^5$$

$$2) 12x^{12} \div 4x^4 = \frac{12x^{12}}{4x^4} = 3x^8$$

$$3) (3x^3)^2 = 9x^6$$

$$4) 7^1 = 7$$

$$5) 6^0 = 1$$

$$6) 5^{-2} = \frac{1}{5^2} = \frac{1}{25}$$

$$7) 8^{\frac{1}{3}} = \sqrt[3]{8} = 2$$

$$8) 25^{3/2} = (\sqrt{25})^3 = 5^3 = 125$$

$$9) 27^{-\frac{2}{3}} = \frac{1}{27^{2/3}} = \frac{1}{(\sqrt[3]{27})^2} = \frac{1}{3^2} = \frac{1}{9}$$

$$10) \left(\frac{3}{4}\right)^{-2} = \left(\frac{4}{3}\right)^2 = \frac{16}{9}$$

$$11) 7x^5 \times 4x^3 = 28x^8$$

$$12) 20x^{13} \div 5x^{16} = 4x^{-3}$$

$$13) (2x^2)^4 = 16x^8$$

$$14) 6^1 = 6$$

$$15) 7^0 = 1$$

$$16) 2^{-4} = \frac{1}{2^4} = \frac{1}{16}$$

$$17) 32^{\frac{1}{5}} = \sqrt[5]{32} = 2$$

$$18) 64^{2/3} = (\sqrt[3]{64})^2 = 4^2 = 16$$

$$19) \frac{y^4 \times y^3}{y^2} = \frac{y^7}{y^2} = y^5$$

$$20) \quad 8^{-\frac{4}{3}} = \frac{1}{8^{\frac{4}{3}}} = \frac{1}{(\sqrt[3]{8})^4} = \frac{1}{2^4} = \frac{1}{16}$$
