

Indices Review

- 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) $x^{\frac{p}{q}} = (\sqrt[q]{x})^p$

Examples

- 1) $y^4 \times y^3 = y^7$
- 2) $y^8 \div y^2 = y^6$
- 3) $(x^5)^3 = x^{15}$
- 4) $7^1 = 7$
- 5) $6^0 = 1$
- 6) $3^{-4} = \frac{1}{3^4} = \frac{1}{81}$
- 7) $8^{\frac{1}{3}} = \sqrt[3]{8} = 2$
- 8) $27^{\frac{2}{3}} = (\sqrt[3]{27})^2 = 3^2 = 9$
- 9) $(4x^2)^3 = 64x^6$

$$10) 25^{-3/2} = \frac{1}{25^{3/2}} = \frac{1}{(\sqrt[2]{25})^3} = \frac{1}{5^3} = \frac{1}{125}$$

$$11) \left(\frac{3}{4}\right)^{-2} = \left(\frac{4}{3}\right)^2 = \frac{16}{9}$$

Exercise

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

$$2) \frac{20y^4}{5y} = 4y^3$$

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

$$4) 3^1 = 3$$

$$5) 4^0 = 1$$

$$6) 2^{-5} = \frac{1}{2^5} = \frac{1}{32}$$

$$7) 81^{\frac{1}{4}} = \sqrt[4]{81} = 3$$

$$8) 125^{\frac{2}{3}} = (\sqrt[3]{125})^2 = 5^2 = 25$$

$$9) \left(\frac{5}{8}\right)^{-2} = \left(\frac{8}{5}\right)^2 = \frac{64}{25}$$

$$10) \left(\frac{16}{9}\right)^{\frac{3}{2}} = \left(\sqrt{\frac{16}{9}}\right)^3 = \left(\frac{4}{3}\right)^3 = \frac{64}{27}$$
