

What you will learn about:
Integer Exponents and
Scientific Noataion

Negative Exponent

$$a^{-n} = \frac{1}{a^n}$$

$$(4x)^{-2} \rightarrow \frac{1}{16x^2}$$

Simplify:

$$2^{-3} = \frac{1}{2^3} = \frac{1}{8} \quad 10^{-5} = \frac{1}{10^5} = \frac{1}{100,000} \quad x^{-8} = \frac{1}{x^8}$$

$$4x^{-2} = 4 \cdot x^{-2} = \frac{4}{x^2}$$

$$\frac{1}{y^{-4}} = y^4$$

$$\frac{1}{3^{-2}} = 3^2 = 9$$

$$\frac{1}{5x^{-6}} = \frac{x^6}{5}$$

$$\left(\frac{5}{7}\right)^{-2} = \left(\frac{7}{5}\right)^2 = \frac{49}{25}$$

$$\left(-\frac{2x}{y}\right)^{-3} = \left(\frac{-y}{2x}\right)^3 = -\frac{y^3}{2^3 x^3} = -\frac{y^3}{8x^3}$$

$$\left(-\frac{a}{2b}\right)^{-4} = \left(-\frac{2b}{a}\right)^4 = \frac{2^4 b^4}{a^4} = \frac{16b^4}{a^4}$$

$$x^{-4} \cdot x^6 = x^2$$

$$y^{-8} \cdot y^3 = y^{-5} = \frac{1}{y^5}$$

$$z^{-5} \cdot z^{-4} = z^{-9} = \frac{1}{z^9}$$

$$(m^4n^{-3})(m^{-5}n^{-2})$$

$$m^{-1}n^{-5}$$

$$\frac{1}{mn^5}$$

$$(2x^{-6}y^8)(-5x^5y^3)$$

$$-10x^{-1}y^{11}$$

$$\frac{-10y^{11}}{x}$$

$$(6k^3)^{-2} \left(\frac{1}{6k^3}\right)^2 = \frac{1}{36k^6}$$

$$6^{-2}k^{-6}$$

$$\frac{1}{6^2k^6} = \frac{1}{36k^6}$$

$$(-4x^4)^{-2} = \left(\frac{1}{4x^4}\right)^2$$

$$(-4)^{-2}(x^4)^{-2}$$

$$\frac{1}{16x^8}$$

$$(5x^{-3})^2$$

$$5^2x^{-6}$$

$$\frac{25}{x^6}$$

$$\frac{r^5}{r^{-4}} \quad 5-(-4)$$

$$r^9 \quad 5+4$$

$$\frac{y^8}{y^{-3}} \quad 8-(-3)$$

$$y^{11} \quad 8+3$$

Scientific Notation

$$a.bc \times 10^x$$

Write in scientific notation:

37,000

$$3.7 \times 10^4$$

96,000

$$9.6 \times 10^4$$

48,300

$$4.83 \times 10^4$$

0.0052

$$5.2 \times 10^{-3}$$

0.0129

$$1.29 \times 10^{-2}$$

5

$$5 \times 10^0$$

Convert to decimal form

$$6.2 \times 10^3 \quad 6,200$$

6,200

$$8.9 \times 10^{-2}$$

0.089

Multiply. Write answer in scientific notation and decimal form

$$(4 \times 10^5)(2 \times 10^{-7}) = 8 \times 10^{-2}$$

$$(3 \times 10^{-2})(3 \times 10^{-1}) = 9 \times 10^{-3}$$

$$(8 \times 10^5)(9 \times 10^{-2}) = 72 \times 10^3$$
$$7.2 \times 10^4$$

Divide. Write answer in scientific notation and decimal form

$$\frac{9 \times 10^3}{3 \times 10^{-2}} = 3 \times 10^5$$

$$\frac{6 \times 10^{-5}}{3 \times 10^{-6}} = 2 \times 10^1$$

$$\frac{2 \times 10^6}{8 \times 10^4} = .25 \times 10^2$$
$$2.5 \times 10^1$$

