

$$\frac{0}{0} =$$

Distance between two points

P.2: Integer Exponents & Scientific Notation

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$$3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$$

$$x^2 \cdot x^3 = x^5$$

$$2^2 \cdot 2^3 = 2^5$$

$$1, \underline{236,000} = 1.236 \cdot 10^6$$

$$\underline{.000147} = 1.47 \cdot 10^{-4}$$

$$-3^2 = (-1)3^2 = -9$$

$$(-3)^2 = (-3)(-3) = 9$$

$$(-3)^0 = 1$$

$$-3^0 = -1$$

Why is $(-)^0 = 1$

$$\frac{x^3}{x^3} = 1$$

\searrow $x^{3-3} = x^0$

Def: $x^0 = 1, x \neq 0$

$$\frac{0}{0} = \cancel{1} \cdot \cancel{0} \quad 0 = 0 \cdot 1 = 0$$

undefined

$$0 = 0 \cdot 0 = 0$$

$$\frac{a}{b} = c \text{ is equivalent to } a = bc$$

$$\frac{10}{5} = 2$$

$$10 = 5(2)$$

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

$$\begin{aligned} (4y^2)^{-3} &= 4^{-3} y^{-6} \\ &= \frac{1}{4^3} \cdot \frac{1}{y^6} \\ &= \frac{1}{64y^6} \end{aligned}$$

$$\begin{aligned}(-4ac^3)^{-2} &= \frac{1}{(-4ac^3)^2} \\ &= \frac{1}{16a^2c^6}\end{aligned}$$

$$\begin{aligned}\left(\frac{2y^2}{5yx^2}\right)^{-2} &= \left(\frac{2y}{5x^2}\right)^{-2} \\ &= \left(\frac{5x^2}{2y}\right)^2 \\ &= \frac{25x^4}{4y^2}\end{aligned}$$

$$\left(\frac{9x^3 y^4 z^7}{3x^{-4} y^3 z^{-1}} \right)^2 = \left(3x^7 y^8 z^8 \right)^2$$

$$x^{3-(-4)} \quad z^{7-(-1)}$$

$$x^{3+4} \quad z^{7+1}$$

$$= 9x^{14} y^2 z^{16}$$

$$\left(\frac{27x^3 z^5 \omega^{-2}}{3z^2 \omega} \right)^{-3} = \left(\frac{9x^3 z^3}{\omega^3} \right)^{-3}$$

$$\left(\frac{\omega^3}{9x^3 z^3} \right)^3 = \frac{\omega^9}{9^3 x^9 z^9}$$

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P.8: Solving Basic Equations

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Chapter One: Functions, Graphs, & Applications