

Chp 2 Review

Functions Review

Control (x) Dependent (y)
 Domain Range

Growth vs Decay Constant
 Nonlinear Nonlinear
 Linear Linear

Writing Linear functions

$$y = mx + b$$

m = slope

b = vertical (y) - int

(2, 4) (7, -6)

1. Find Slope $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 4}{7 - 2} = \frac{-10}{5} = -2$

2. Find intercept
 $4 = -2(2) + b$
 $4 = -4 + b$
 $-4 + 4$
 $8 = b$

3. write equation
 $y = -2x + 8$

$$\frac{y}{x} = k \text{ or } y = kx$$

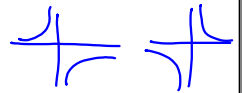
Does it model direct variation

- Graphically goes through origin
- Quotient for all (x,y)

$$\frac{y}{x} = k$$

$$xy = k \quad y = \frac{k}{x}$$

- Graphically



- product = k for all (x,y)

x	y	xy
2	64	128
4	32	128
8	16	128
16	8	128

$$y = \frac{128}{x}$$

Direct Variation with powers

find SA, Vol when rad = 3

$$SA = 4\pi r^2 \quad \text{Leave ans in } \pi$$

$$Vol = \frac{4}{3}\pi r^3$$

SA = $36\pi u^2$ model direct variation
 Vol = $36\pi u^3$

$$y = ax^n \quad y = kx^2 \quad y = kx^3$$

R, D

SA

Vol

$$\frac{r_1}{r_2}$$

$$\frac{r_1^2}{r_2^2}$$

$$\frac{r_1^3}{r_2^3}$$

$$\frac{3}{4}$$

$$\frac{9}{16}$$

$$\frac{27}{64}$$

$$\frac{9}{16} = \frac{x}{256}$$

$$16x = 2304$$

$$x = 144$$

The ratio of 2 spheres radii is 3:4 If the SA of the larger sphere is 256in^2 what is the SA of the smaller sphere
 144in^2

$$7^{-2} = \frac{1}{7^2} = \frac{1}{49}$$

$$\frac{a^3}{b^3} = a^3 b^{-3}$$

$$\frac{6a^4 b^{-2}}{9a^{-2} b^3 c^2} = \frac{6a^6}{9b^5 c^2} = \frac{2a^6}{3b^5 c^2}$$

Fractional Exponents

$$a^{\frac{1}{2}} = \sqrt{a}$$

$$b^{\frac{1}{3}} = \sqrt[3]{b}$$

$$9b^{\frac{1}{2}} = 9\sqrt{b}$$

$$(3x)^{\frac{1}{2}} = \sqrt{3x}$$

doubling

$$y = a(2)^x$$

Halving

$$y = a\left(\frac{1}{2}\right)^x$$

Half lives

6 mins

$$y = 2048\left(\frac{1}{2}\right)^x$$

5 mins

$$y = 2048\left(\frac{1}{2}\right)^{10}$$

$$y = 2048\left(\frac{1}{1024}\right)$$

$$y = 2$$