

Describe how to find each.

1. Vertical Asymptotes
2. Horizontal Asymptotes

$$y = \frac{ax^m}{bx^n}$$

$$m = n \quad y = \frac{a}{b}$$

$$m < n \quad \text{none}$$

$$m > n \quad y = 0$$

Oct 4-9:37 AM

3.6

Direct Variation

$$y = Kx$$

Direct Variation with Power

$$y = Kx^n$$

Inverse Variation with power

$$y = \frac{K}{x^n}$$

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Varies Jointly
 $y = Kx^n z^m$

If x varies directly as y and
 $x = 8$ when $y = 2$, find x when $y = 3$.

$$y = Kx$$

$$y = \frac{1}{4}x$$

$$\frac{2}{8} = \frac{8K}{8}$$

$$4 \cdot 3 = \frac{1}{4}x \cdot y$$

$$K = \frac{1}{4}$$

$$x = 12$$

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Force varies directly - acc

$$\text{Force} = 54 \text{ N}$$

$$\text{acc} = 9 \text{ m/s}^2$$

$$\text{Force} = 60 \text{ N}$$

$$\text{acc} = ?$$

$$y = Kx$$

$$F = KA$$

$$F = KA$$

$$\frac{60}{6} = \frac{6 \cdot A}{6}$$

$$\frac{54}{9} = \frac{K \cdot 9}{9}$$

$$A = 10$$

$$K = 6$$

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Suppose j varies jointly with g and v,
 and $j = 2$ when $g = 6$ and $v = 5$.

$$y = Kxz$$

$$j = Kgv$$

$$2 = K(6)(5)$$

$$\frac{2}{30} = \frac{30K}{30}$$

$$K = \frac{1}{15}$$

$$t = \frac{KL}{W}$$

Find j when $g = 8$
 and $v = 11$.

$$j = \frac{1}{15} (8)(11)$$

$$j = \frac{88}{15}$$

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Wire -

Directly

$$\text{resistance} = 760$$

$$\text{temp} = 190 \text{ K}$$

$$\text{res} = ?$$

$$\text{temp} = 250 \text{ K}$$

$$y = Kx$$

$$y = Kx$$

$$\frac{760}{190} = \frac{K \cdot 190}{190}$$

$$y = 4(250)$$

$$K = 4$$

$$y = 1000$$

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Speed varies inversely with Time

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

$$R = \frac{k}{T}$$

Speed = 56 mph
Time = 5 sec

$$5 \cdot 56 = \frac{k}{5} \cdot 5$$

$$k = 280$$

$$R = \frac{k}{T}$$

$$R = \frac{280}{7} =$$

Boyle's Law

$$V = \frac{k}{P}$$

R = ? 40 mph
T = 7 sec

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$$y = \frac{k}{x^2}$$

$$R = \frac{k}{d^2}$$

$$.444 = \frac{k}{(.01)^2}$$

$$k = .0000444$$

$$R = \frac{.0000444}{(.0212)^2}$$

$$R = .09878$$

$$.0988$$

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x int $3 \neq 5$

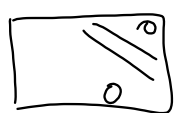
$$y = x^2$$

y int 3

$$y = \frac{1}{3}x^2 - \frac{8}{3}x + 3$$

$$y = (x-3)(x-5)$$

$$y = \frac{x^2 - 8x + 15}{5}$$

$$y = \frac{1}{5}x^2 - \frac{8}{5}x + 3$$


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$$x^4$$

3 mult 2

$6i$

$$(x-3)(x-3)(x-6i)(x+6i)$$

$$(x+1)(x-2)(x-(2+3i))(x-(2-3i))$$

$$(x-2-3i)(x-2+3i)$$

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