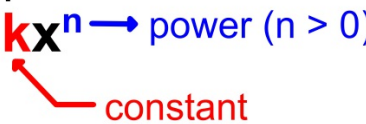


Power Functions

y varies directly as the n^{th} power of x if there exist a real number k such that: $y = kx^n$ 

Examples:	Power	Constant of Variation	Graph
Circumference $C = \pi d$			
Area of a circle $A = \pi r^2$			
Volume of a cube $V = s^3$			

y varies inversely as the n^{th} power of x if there exist a real number k such that: $y = \frac{k}{x^n}$
 $k \rightarrow$ constant
 $x^n \rightarrow$ power ($n > 0$)

Examples:	Power	Constant of Variation	Graph
$V = \frac{3}{P}$			
$F = \frac{100}{d^2}$			
$f(x) = \frac{6}{x^3}$			

Direct and Inverse Variations with Radicals

Write an equation for the following, then sketch the graph of the function.

y varies directly with the square root of x.

y varies inversely with the cube root of x.

y is proportional to the fourth root of x cubed.

Word Problems

1) Suppose y varies directly with the cube of x and $y = 100$ when $x = 4$. Find the value of x when $y = 10$

2) Suppose y varies inversely with the square of x and $y = 4$ when $x = 5$. Determine the value of y when $x = 9$.

3) The length, L , of a pendulum varies directly with the square of its period, T , the time required for the pendulum to make one complete swing back and forth. The pendulum on a grandfather clock is 3.25 feet long and has a period of 2 seconds. A hypnotist uses a gold pendant as a pendulum to mesmerize his clients. If the chain on the pendant is 9 inches long, what is the period of its swing?