Math functions essay sample

Pre-Calculus and Trig/Pre-Calculus Writing Assignment As a part of our math course we have been assigned a writing piece in which we are required to discuss the properties and uses of several kinds of algebraic functions. The four models include, linear, exponential, power, and inverse power. The purpose of this assignment is to review our understanding of these models and their uses and to fulfill a writing piece for the MEAP test. The first and simplest function to be discussed is the linear function.

A linear function can be modeled by the equation $f(x)= ax+b$, where a is the slope and b is the y-intercept. Linear functions form a straight line when graphed and maintain a constant slope. It can be an increasing or decreasing function. For example, a lemonade stand sells a cup of lemonade for twenty-five cents. Graphed, x would be the cups sold, and y would be income. If the people running the stand start with no money, then the y-intercept will be zero. Because each cup cost twenty-five cents, the slope is twenty-five. The situation can be modeled, income=. 25cents cups sold.

Exponential functions are the next type of function, modeled by $g(x)= ab$. As x increases, y increases or decreases exponentially. An increase is called a growth, and a decrease is called a decay. Exponential functions contain a horizontal asymptote in which y can never equal zero. The growth of bacteria is an exponential function that can be shown on a number of bacteria vs. time graph. Every time bacteria divide, the amount doubles, so $y= 2$.

Power functions are the third type of model to be discussed. A power function can be modeled by $h(x)= ax$. Power equations are composed of odd and even functions. Even function are parabolas. For every y there exists an

x. A power model could useful in showing how a car accelerates from a stop when it is floored. As time (x) increases, distance (y) on the road increases extremely fast.

The last function, inverse power, is represented by the equation i(x)= a/x. As x increases, y decreases and as x decreases, y increases. Inverse functions contain two asymptotes, a horizontal and a vertical. A graph of speed vs. time is a perfect example of an inverse function. Traveling slowly takes more time, and traveling quickly takes less time. The vertical asymptote is x= 0, because even traveling at the speed of light takes some time. The horizontal asymptote is also zero, because traveling at zero MPH will get one no where. That sums up the four basic functions, linear, exponential, inverse, and power.