

Problem statement Some loglog “graph paper” is shown to the right. The axes cross at $(1, 1)$, and spacing of the horizontal and vertical line segments on the axes are both logarithmic so the distance between two labels on each of the axes actually corresponds to the differences of the logs of the labels. Use the “graph paper” carefully, since only some of the crossings on the vertical axis are labeled.

a) Consider the equation $y = 1.5x^2$. Locate on the “graph paper” those points corresponding to $x = 1$, $x = 2$, $x = 3$, $x = 4$, $x = 5$, and $x = 6$ as well as you can. What seems to be the relationship of these points? What is the geometric slope of this relationship?

b) Suppose that x and y are related by a power law, so that $y = Ax^B$ where $A > 0$. Verify that $\ln x$ and $\ln y$ are related by an equation describing a straight line. What is the slope of this line?

