

## Answer on Question #63021, Programming & Computer Science / Other

Explain why the plot of the function  $n^c$  is a straight line with slope  $c$  on a log-log scale.

### Answer:

Given a power law equation  $y = an^c$ , taking the logarithm of the equation (with any base) yields:

$$\log y = c \log n + \log a$$

Setting  $X = \log n$  and  $Y = \log y$ , which corresponds to using a log-log graph, yields the equation of the line:

$$Y = mX + b$$

where  $m = c$  is the slope of the line (gradient) and  $b = \log a$  is the intercept on the  $(\log y)$ -axis.