# Problem Set 2

1. The following questions relate to the log-log plot. [40]
   (a) Give a function $f(x)$ which does not appear as linear on a log-log plot. [10]
   (b) Give a function $f(x)$ which appears as linear on a log-linear plot (the $x$-axis uses a logarithmic scale and the $y$-axis uses a linear scale). [10]
   (c) Consider the function $f(x)$ shown on the log-log plot from Figure 1. Give the expression of $f(x)$. [20]

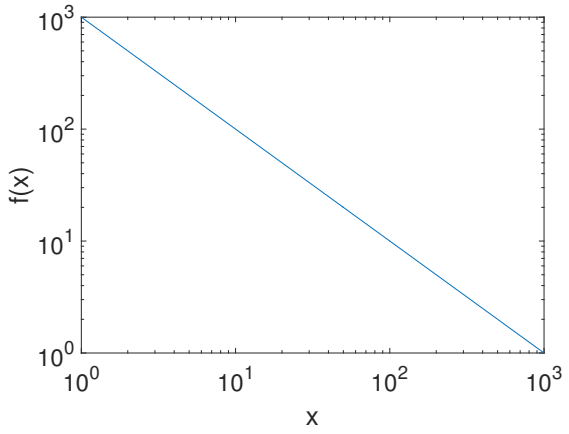


Figure 1: The log-log plot of $f(x)$

2. At time $0$, ten of your friends start moving towards your place for an ad-hoc party. The time it takes each friend $i$ to arrive is denoted by $X_i$ and it is assumed to be exponentially distributed with mean $\frac{1}{\lambda}$; all $X_i$'s are independent. The party can only start when half of your friends arrive. What is the average starting time of the party? [60]