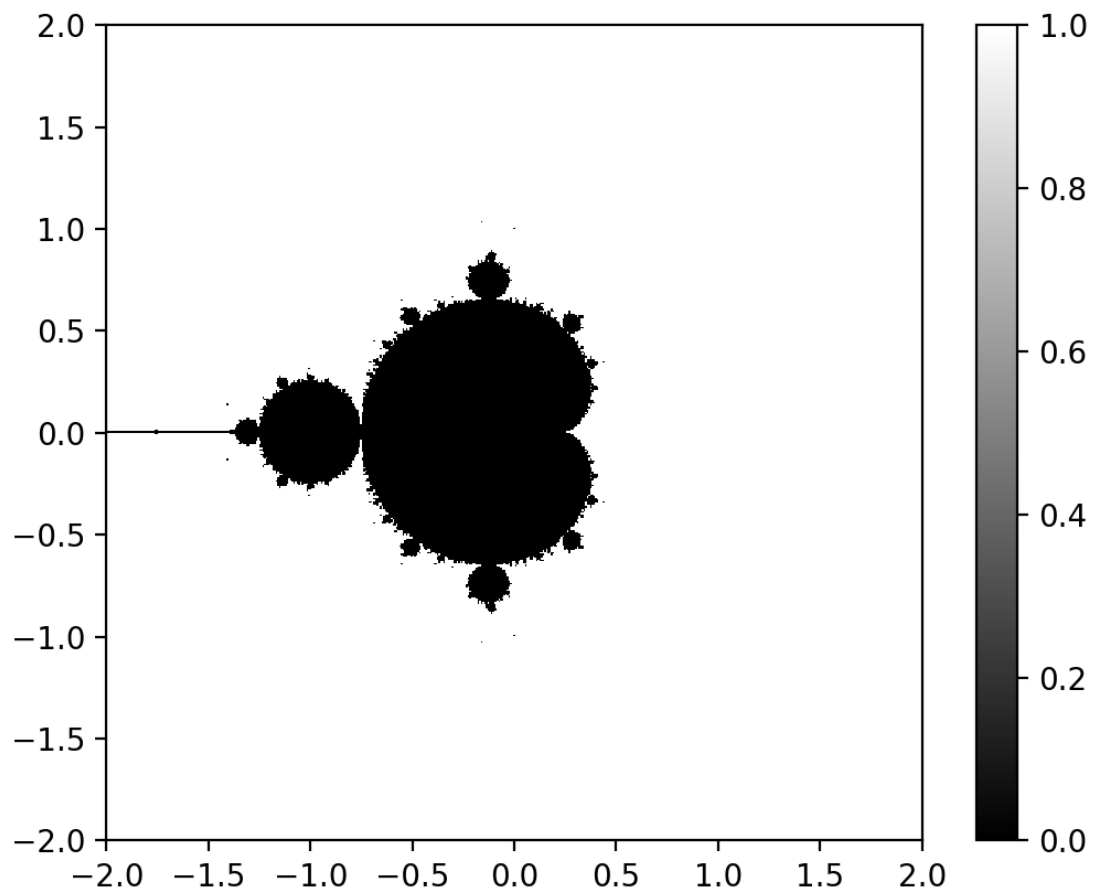# Homework 1

Xingyang Yu

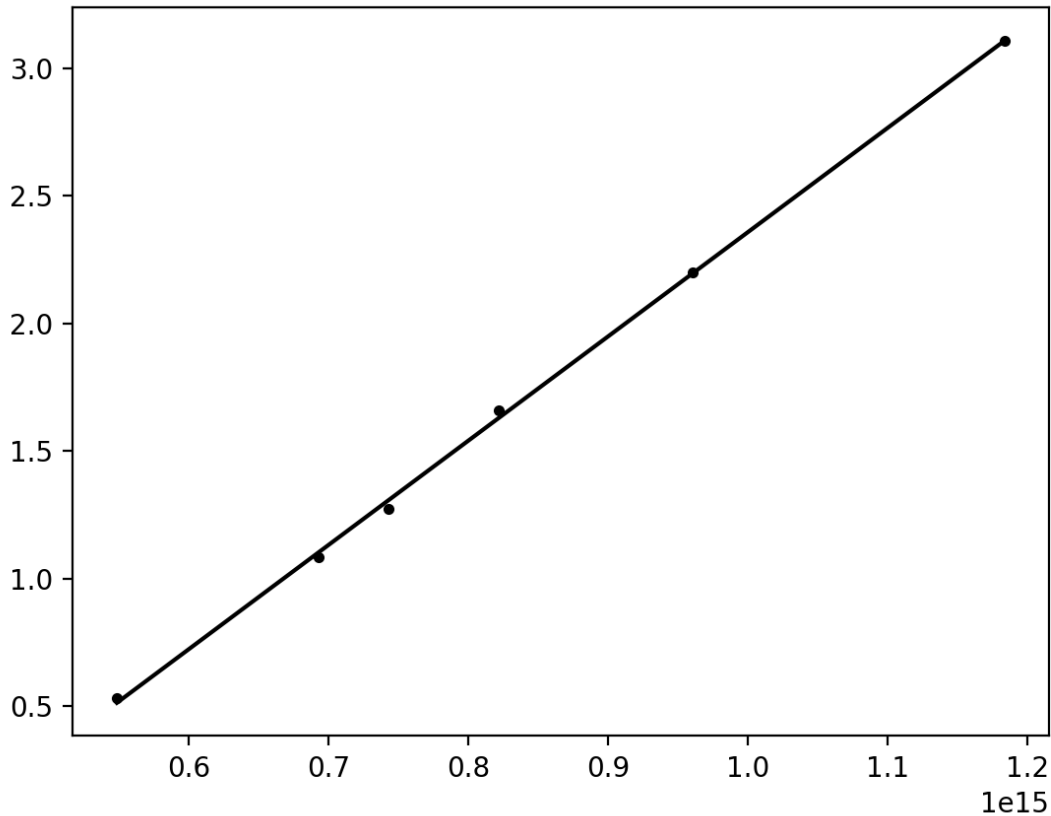## September 18, 2017

1   The Mandelbrot set

iteration number = 100
500×500 points

Analysis:

1) This figure is self-similar, which means it has the same shape as one of the whole parts.
2) It is symmetric about x axes.

2 Least-squares fitting and the photoelectric effect

Analysis:

1) Original experimental data are dots in figure, while the line in figure is the linear function obtained by least-squares fitting.
2) Slope is $m = 4.08822735852 \times 10^{-15}$, and intercept of y axes is $c = -1.73123580398$.
3) With $V = \frac{h}{e}\nu - \phi$, we obtain $h = 6.54934022835 \times 10^{-34}$. Since the accepted value of Planck's constant is $6.62606896 \times 10^{-34}$, the relative error of this result is 1.16%.