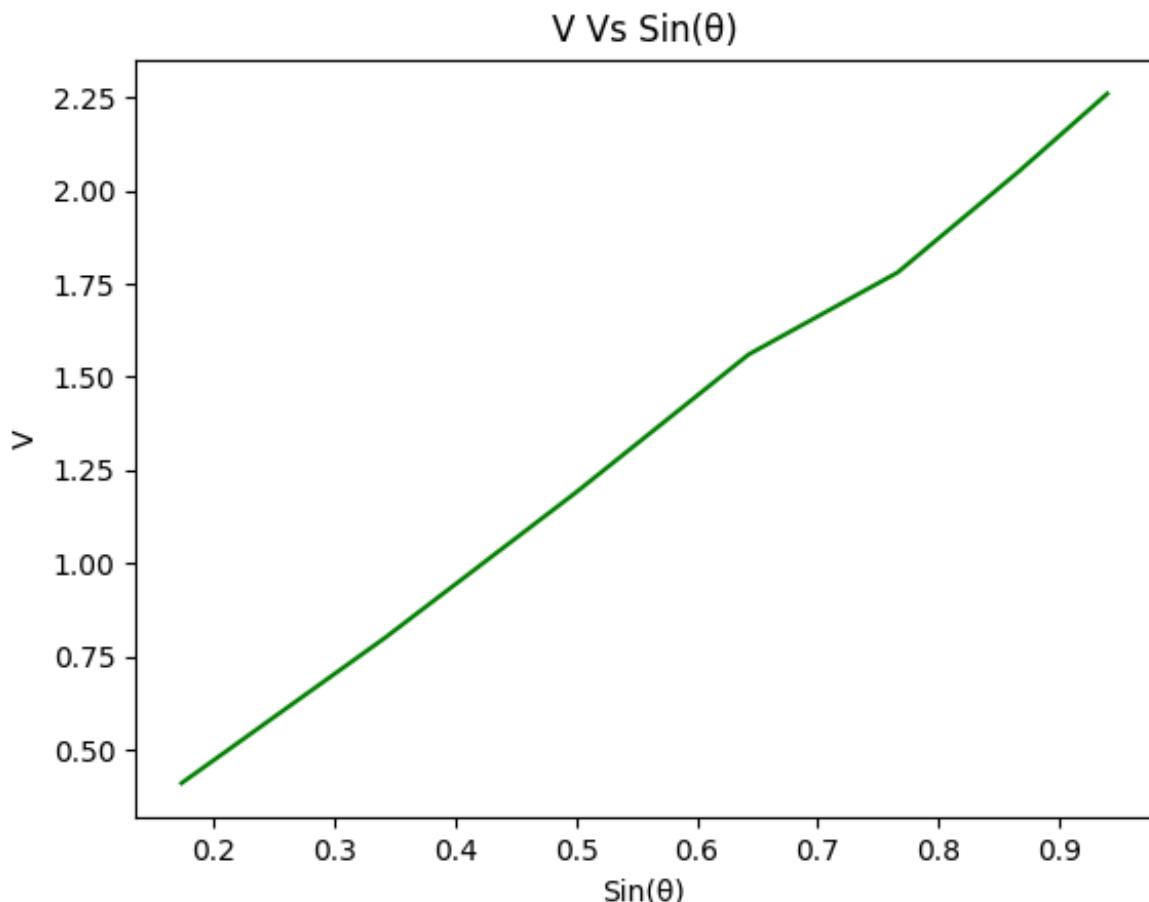


Here is the plot I generated using python



Unsurprisingly, we see that there is a linear relationship between  $\sin\theta$  and the out voltage of the inclinometer

Given that the relationship defining this is governed by

$$V_{out} = k \sin(\theta)$$

The most useful characteristic from this data set is determining the average  $k$  value for our inclinometer, I found that as well to be

$$k_{avg} = 2.3718$$

Which matches the given data nicely.

if at all interested, this is the script used to generate the plot and find the average k value

```
from matplotlib import pyplot as plt
import numpy as np

inclination = np.array([
    10, 20, 30, 40, 50, 60, 70
])

Vout = np.array([
    0.41, 0.80, 1.19, 1.56, 1.78, 2.05, 2.26
])

fig, ax = plt.subplots()

ax.plot(np.sin(np.deg2rad(inclination)), Vout, color='g')
ax.set_title('V Vs Sin(θ)')
ax.set_xlabel('Sin(θ)')
ax.set_ylabel('V')
plt.show()

k = Vout / np.sin(np.deg2rad(inclination))

kavg = sum(k)/len(k)

print(f' k_avg: {kavg:.5g}')
```