**Dimensional Analysis and Graphing**

The dimensions, or units, of a quantity can tell us much about a quantity, and give us clues to help us use the quantity in a problem.

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| --- | --- | --- | --- |
| **Quantity** | **Formula** | **Common Units** | **M,K,S Units** |
| Displacement |  |  |  |
| Time |  |  |  |
| Mass |  |  |  |
| Velocity |  |  |  |
| Acceleration |  |  |  |
| Force |  |  |  |
| Work |  |  |  |
| Gravitational Potential Energy |  |  |  |
| Kinetic Energy |  |  |  |
| Pressure |  |  |  |

**Example:**

If you know the density of an object, and want to know the force needed to lift the object, which quantities will you need to use to be able to find the force?

**Graphing**

A student measures the final speed of an accelerating car at various displacements. The data collected is shown below.



1. Plot a graph of the final speed squared (*v*2) versus the displacement (*d)* of the car on the graph below. **(3 marks)**

(**Hint**: Think equation, think linear relationship between 2 different variables)



1. Determine the slope of the line of best fit to the data and state what the slope represents. Extend the line to the *y*-axis and use the *y*-intercept to determine the initial speed of the car.