**1.*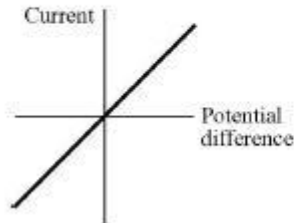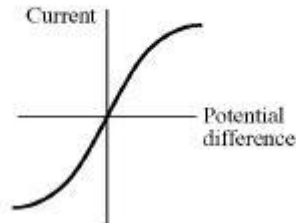* You may be familiar with the 3 components below and the corresponding graphs of current vs potential difference from your GCSE course.
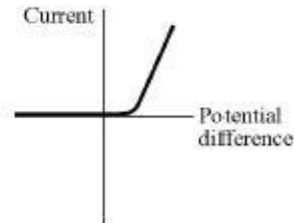
A resistor at constant temperature   A filament lamp   A diode

Using the idea that Resistance = voltage / current sketch a graph of resistance (y-axis) vs potential difference (x-axis) for each of the components above.

2. A group of intrepid astronauts visit the "Dark Side of the Moon". Whilst there, they find three new types of moon-rock, naming them Gilmourene, Waterstone and Masonite. They are able to use their scientific skills to determine the following three facts about these rocks:
2m^3 of Gilmourene has the same mass as 5m^3 of Waterstone.
The average (mean) density of Masonite and Gilmourene is 3500 kg/m^3.
50kg of Masonite has the same volume as 8kg of Waterstone.

a) Using the letters G, W and M to represent the densities of these rocks, write these three facts down as equations. The first one has been done for you.

i) 2G = 5W

ii)

iii)

[2]

b) Solve these simultaneous equations to calculate the densities of each of the 3 rocks.

[3]