

Graph 1 - I blow up a roughly spherical balloon using a balloon pump. After each pump I measure the radius of the balloon in centimetres. What would the radius - number of pumps graph look like? **The line will increase steeply at the start as the radius will grow more significantly when the balloon is smaller. Eventually the gradient will not be very steep.**  $y = Ax^{1/3}$

Graph 2 - A cup of tea is made and the temperature measured in degrees Celsius every second. What would the temperature - time graph look like? **The temperature would fall until it reaches room temperature and then it would stay constant.**  $y = A/e^x + B$

Graph 3 - I drive at 70 miles an hour along the motorway and note the reading on my odometer (mile counter) every 5 minutes. What would the odometer reading - time graph look like? **If you travelled at 70 mph the whole time the graph would increase constantly as you would have travelled the same distance every 5 minutes.**  $y = Ax$

Graph 4 - The height of the valve on a bicycle tyre above the ground is measured after each centimetre that the bicycle travels forwards. What would the height - distance graph look like? **The valve starts at the bottom and as the wheel goes round it reaches a peak at the top and then falls and this repeats many times.**  $y = A \sin(Bx)$

Graph 5 - I jump out of a plane and the distance fallen from the plane is measured every 0.1 second until I open my parachute. What would the distance fallen - time graph look like whilst in freefall? **To begin with you would accelerate and then eventually reach terminal velocity and the line would become constant.**  $y = Ax^2$

Graph 6 - I suck water through a straw out of a large beaker at a constant rate and measure the volume of liquid remaining at various times. What would the volume-time graph look like? **The volume of liquid remaining will decrease at a constant rate.**  $y = Ax + B$

Graph 7 - I throw a tennis ball straight up into the air and catch it. The height of the ball from the ground is measured over the time of the journey using freeze-frame photography. What would the height - time graph look like? **When the ball is thrown the height increases to its maximum then falls due to gravity.**  $y = Ax^2 + Bx + C$

Graph 8 - I measure several objects using inches and then using metres, plot them on a scatter graph, and join the points. What would the metres - inches graph look like? **1 inch would be 0.025 of a metre so the y-axis would have a relatively small range compared to the x-axis.**  $y = Ax + b$