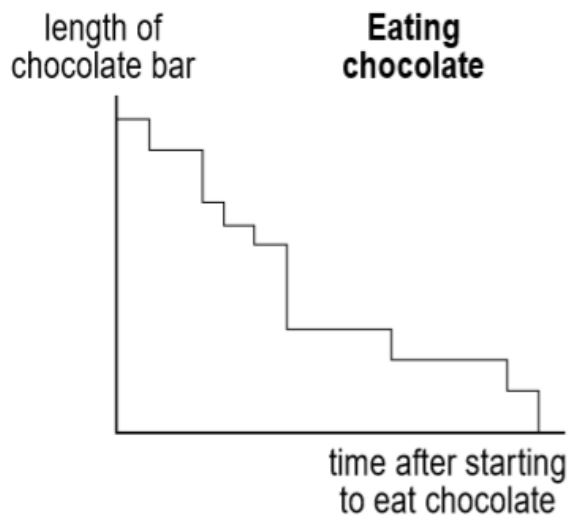


**Problem of the Week: Week 2 (Summer 2): Year 8: Algebra: different graphs**

- Explore cubic, exponential, reciprocal and piece-wise linear graphs.
- Find approximate solutions to contextual problems using these graphs

**Problem 1**

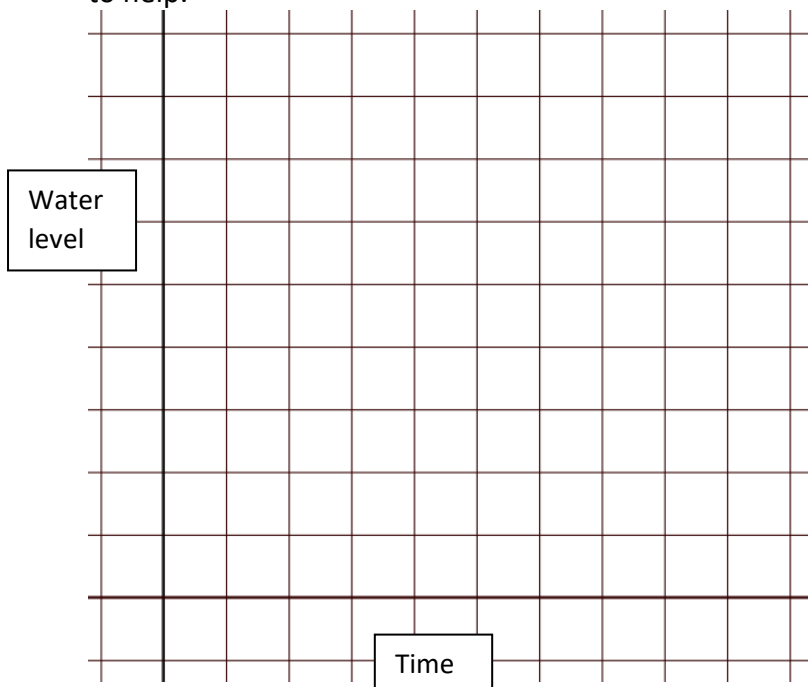
Give reasons why the graph is this shape



Framework for teaching mathematics: Years 7, 8 and 9 .

**Problem 2**

Draw a graph to show the water level of a bath, from putting the plug in to fill it, having a bath and letting the plug out at the end. Give reasons for the shape of the graph. Use the axes below to help.



**Problem 3**

$$y = \frac{2}{x}$$

$$y = \frac{x}{2}$$

$$y = \frac{5}{x}$$

$$y = \frac{x}{3}$$

What is the same and what is different with these equations?

Sort them into two groups.

Make up two more equations to go in each group

Explore the graphs of each group, what do you notice? (geogebra can be used to explore the graphs:

<https://www.geogebra.org/graphing> it is a free download)

**Problem 4**

$$y = 2^x$$

$$y = \frac{2}{x}$$

Use a graphing tool to draw these graphs (geogebra can be used)

What is the same and what is different with the two graphs?

Using what you have noticed, sketch graphs of the following:

$$y = 3^x$$

$$y = \frac{3}{x}$$

**Problem 5**

Describe this graph, its is the graph of  $y = x^3$

