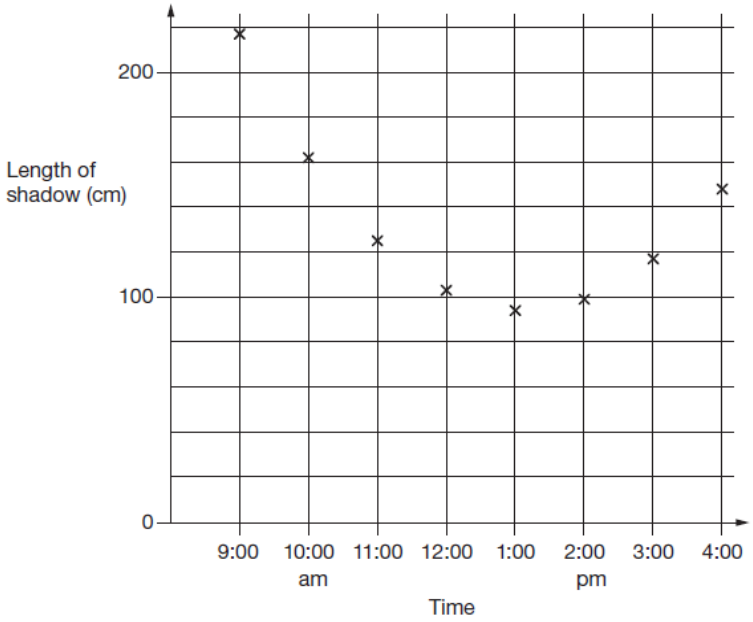
1. Kirsty measured the length of her shadow every hour on one sunny day.

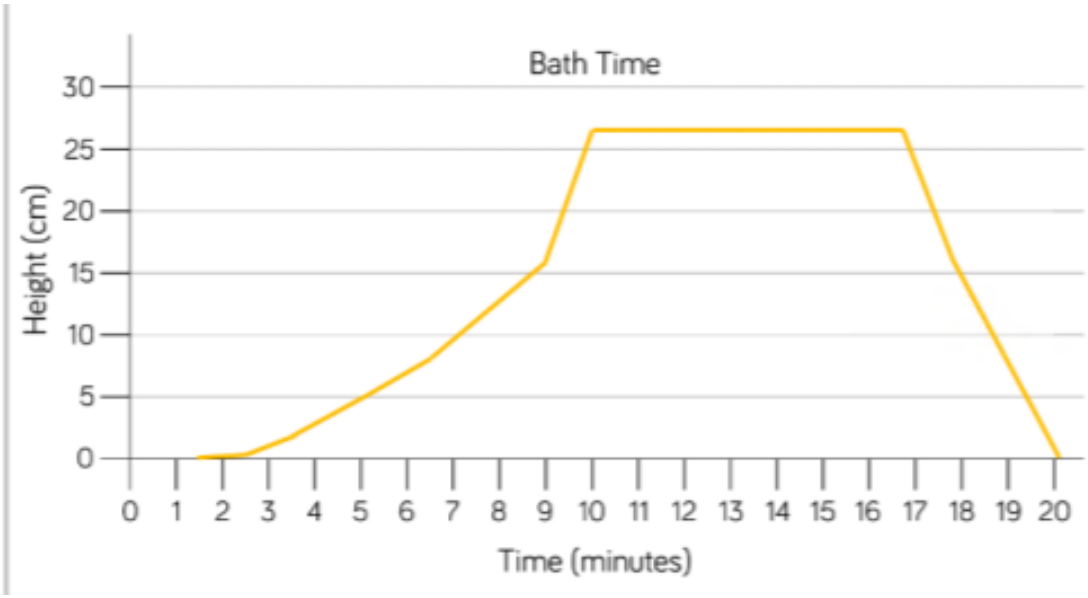
She plotted her results on this graph.



a) Estimate the length of Kirsty's shadow at 3:30 pm.

b) Estimate a time when her shadow was 180 cm long.

2. Here is a line graph showing the height of the water in the bath over one bath time.



a) How long did it take to fill the bath?

b) Why is there a sharp increase in height of the water in the bath after 9 minutes?

(HINT: This has nothing to with the rate of WATER out of the tap because it couldn't possibly increase by more than 10 cm in less than 1 minute)

c) How long did it take to empty?

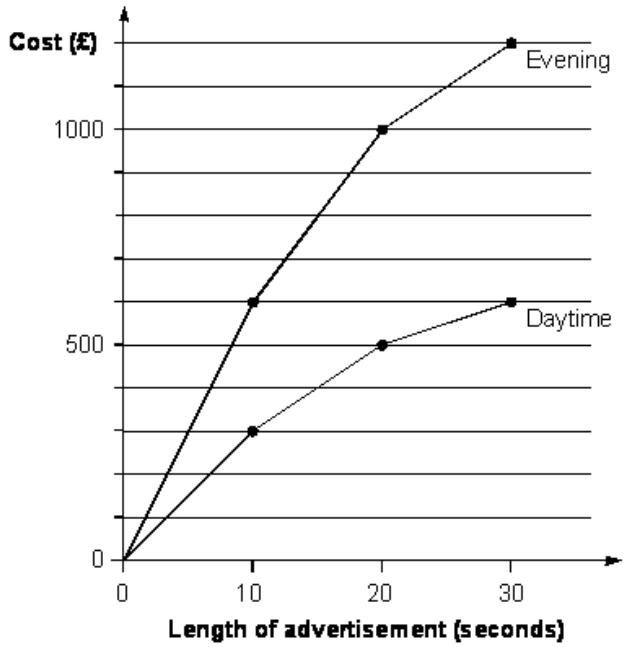
d) How long was the person in the bath.

e) The bath doesn't fill at a constant rate. Why might that be?

Mark your answers to the questions and then tell the story of the bath, as shown by the graph.

If you have time, complete this last challenge

3. This chart gives the cost of showing advertisements on television at different times.



An advertisement lasts **25 seconds.**

Use the graph to estimate how much **cheaper** it is to show it in the **daytime** compared with the **evening.**

An advertisement was shown in the **daytime** and again in the **evening.** The total cost was **£1200.** How long was the advertisement in seconds?

ANSWERS

1. a) 130cm
1. b) 9:30 – 9:45a.m.

2.

a) How long did it take to fill the bath? Approximately 9 ½ minutes
b) Why is there a sharp increase in height of the water in the bath after 9 minutes? This is when the person got IN the bath – water displacement.
c) How long did it take to empty? 3 ½ minutes approx.
d) How long was the person in the bath? Roughly 8 minutes
e) The bath doesn't fill at a constant rate. Why might that be?

The person could have used 1 or 2 taps to change the temperature.

3. Daytime = £550 approx

Evening = £1100 approx

It is half the price £550 less approx.

It would be approximately 15 seconds long