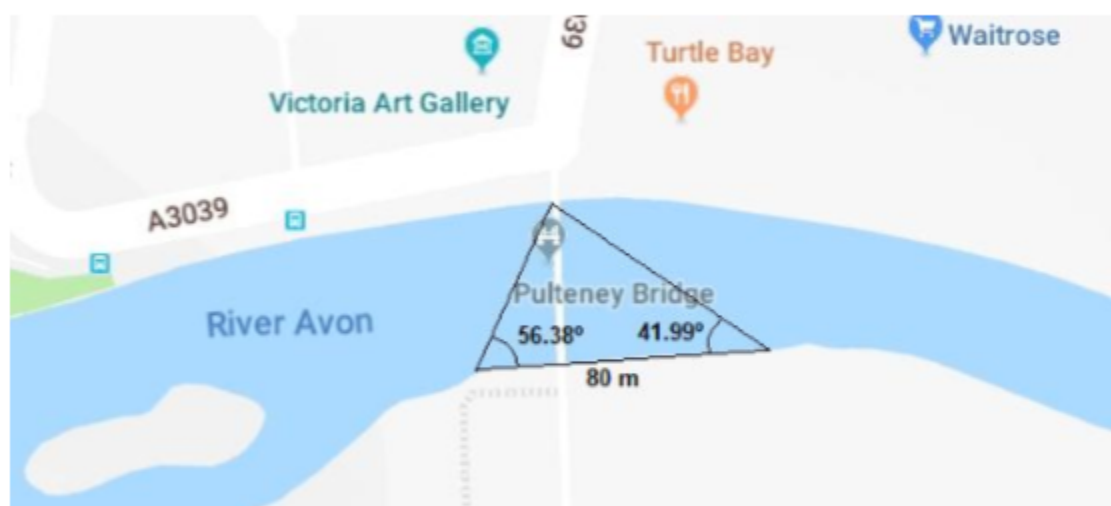
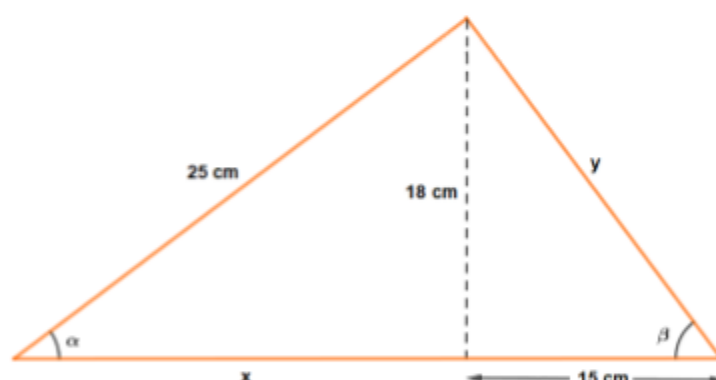


SECOND TERM GLOBAL TEST – 4° ESO

Exercise 1: (1.5 pts) Probably, the most famous landmark in **Bath**, the one you see in every single pic, is Pulteney Bridge, that crosses the River Avon. We want to know the length of the bridge, so Anthony and Xavier are standing on the riverside with a theodolite measuring the angles between them and the other end of the bridge. Please, help them !!



Exercise 2: (1 pto) Find the values of x , y , α and β . You cannot use Pythagoras' theorem.

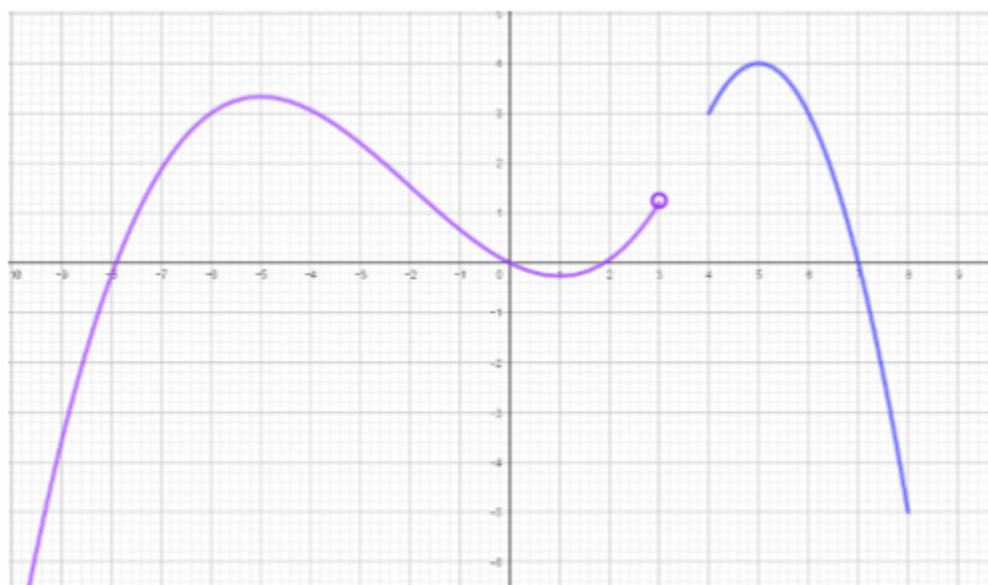


Exercise 3: (1 pto) If $\sin \alpha = 0.85$ and $90^\circ < \alpha < 180^\circ$ find the other five trigonometric functions

Exercise 4: (1.5 point) Find the domain of the functions:

- $f(x) = \sqrt{x^2 - 25}$
- $f(x) = \frac{x^2 - 6x + 9}{x^2 + 3x - 28}$
- $f(x) = \frac{\sqrt{x-1}}{x^2 + 3x - 10}$

Exercise 5: (1.25 pts) Given the following graph of a certain function:



- Find the domain and the range
- Study the monotony
- Study the extrema

Exercise 6: (1.75 points) Sketch the graph of the piecewise function given below. You have to study the parabola, finding the points where it crosses the axes and the coordinates of the vertex:

$$f(x) = \begin{cases} x^2 + 3x & -4 \leq x < 0 \\ \log_2(x+1) & 0 \leq x < 3 \\ x-2 & x \geq 3 \end{cases}$$

Exercise 7: (1 point) Work out the value of these limits:

a) $\lim_{x \rightarrow 5} \frac{x^2 - 25}{x^2 - x - 20} =$

b) $\lim_{x \rightarrow 2} \frac{2x - 5}{x^2 - 4x + 4} =$

Exercise 8: (1 pto) Work out:

a) $\frac{\log_5 875 - \log_5 7}{\log_5 25} =$

b) $\frac{\log_2 3 + \log_2 27}{\log_2 9} =$