



SECOND TERM GLOBAL TEST
4° ESO



Exercise 1: (1.75 ptos)

a) Study the asymptotes of the function $f(x) = \frac{5x+3}{x^2-5x+6}$

b) Work out: $\log_2 \frac{\sqrt[3]{64} \sqrt{2}}{\sqrt[5]{8}} =$

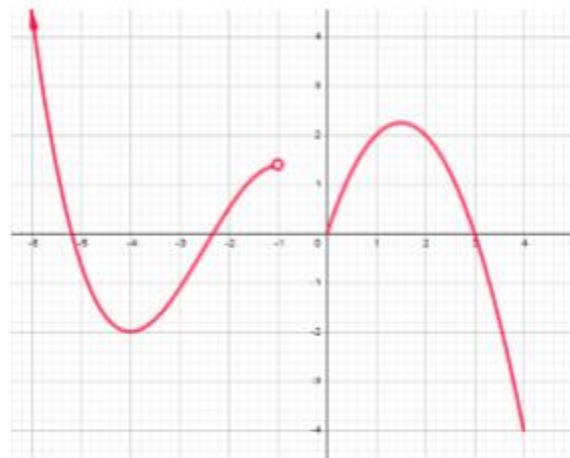
c) Find the domain of the function $f(x) = \frac{x-7}{\sqrt{1-x^2}}$

Exercise 2: (1 pto) Work out:

a) $\lim_{x \rightarrow 1} \frac{x^2 - 2x + 1}{x^2 - 1} =$

b) $\lim_{x \rightarrow \infty} \left(\frac{5x^2 - 3x}{x + 2} - 5x \right) =$

Exercise 3: (1.5 ptos) Given the following graph of a certain function:



- a) Indicate the domain and the image
- b) Study the monotony
- c) Indicate the relative and absolute extrema

Exercise 4: (1.5 ptos) Sketch the graph of the piecewise function

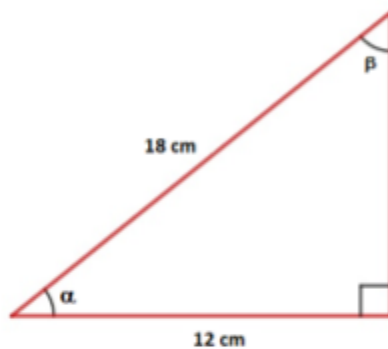
$$f(x) = \begin{cases} x^2 + 2x + 1 & x \leq 1 \\ \log_2 x & 1 < x < 8 \\ 3 & x \geq 8 \end{cases}$$



Exercise 5: (1.25 pto) If $\tan \alpha = 0.37$ and $\pi < \alpha < \frac{3\pi}{2}$ find the other five trigonometric functions and the value of the angle α

Exercise 6: (1 pto) Find the three principal trigonometric functions (sine, cosine and tangent) of the angle $\frac{5\pi}{4}$, without using a calculator.

Exercise 7: (0.75 pto) Find the missing side of this right-angled triangle without using Pythagoras' theorem. Find also the value of the angles α and β



Exercise 8: (1.25 pto) Find the height of the Big Ben if Daniel and Lois are standing 150 m apart, $\alpha = 57.99^\circ$ and $\beta = 46.85^\circ$

