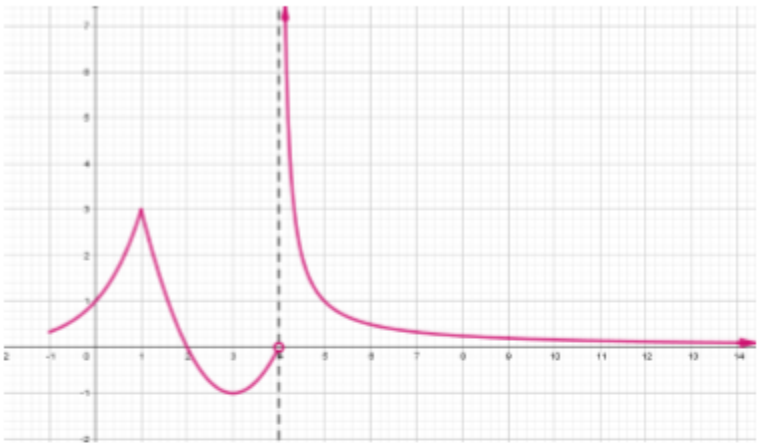
FUNCTIONS TEST – 4º ESO

Exercise 1: (1.75 ptos) Given the following graph of a certain function:



a) Indicate the domain and the image
b) Find the points where the function crosses the axes
c) Study the monotony
d) Indicate the relative and absolute extrema

Exercise 2: (1.5 ptos) Find the domain of the following functions:

a) $f(x)=\dfrac{\sqrt{x-2}}{x^2-16}$

b) $f(x)=\sqrt[4]{x^2+7x+6}$

Exercise 3: (0.75 ptos) Find the general equation of the straight line that goes through the points $A(-2,5)$ and $B(3,8)$

Exercise 4: (1 pto) Plot the graph of the function $f(x)=-x^2+3x+4$, finding the points where it crosses the axes, the coordinates of the vertex and as many more points as necessary

Exercise 5: (1.5 ptos) Work out:

a) $\lim\limits_{x\to 2}\dfrac{3x-5}{x-2}=$

b) $\lim\limits_{x\to -1}\dfrac{x^2+8x+7}{x^2-1}=$

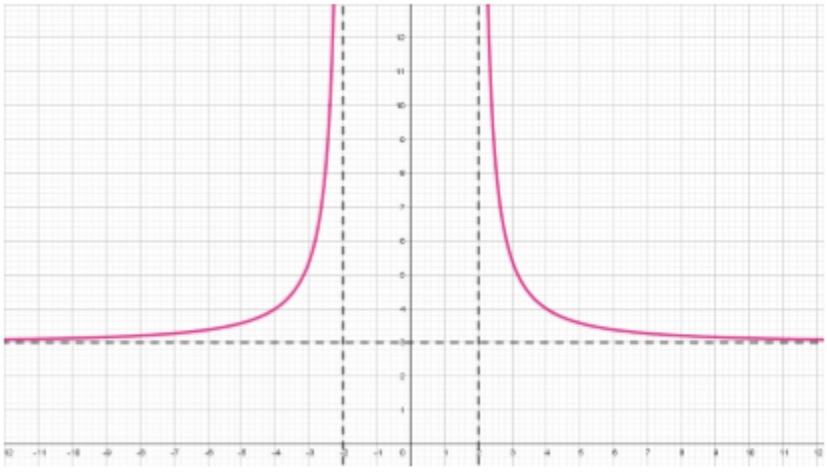
c) $\lim\limits_{x\to +\infty}\left(x-\dfrac{x^2-5x+7}{x-3}\right)=$

Exercise 6: (0.75 ptos) Sketch the graph of the function $f(x)=(x+3)(x-1)^2(x-5)$

Exercise 7: (1 pto) Find the asymptotes of the following functions:

a) $f(x)=\dfrac{2x^2-5x}{x^2-1}$

b)



Exercise 8: (1.75 ptos) Sketch the graph of the piecewise function

$$f(x)=\begin{cases}5 & -8\le x<-1\\ x^2-4x & -1<x<3\\ 7-2x & x\ge 3\end{cases}$$