# FUNCTIONS TEST – 4° ESO

**Exercise 1: (2.75 ptos)** Find the domain of the following functions:

a) $f(x)=\dfrac{7x+4}{x^2-25}$ (0.5)

b) $f(x)=\sqrt[4]{9-x^2}$ (0.75)

c) $f(x)=\dfrac{\sqrt{x+3}}{x^2-16}$ (0.75)

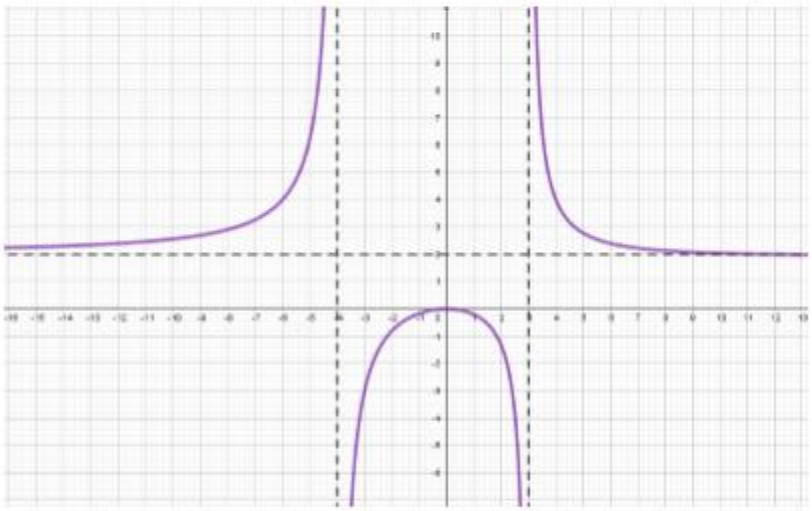
d) $f(x)=\dfrac{x^2-49}{\sqrt{x^2-4x+3}}$ (0.75)

**Exercise 2: (2.25 ptos)** Find the asymptotes of the following functions:

a) $f(x)=\dfrac{3x^2+4x}{x^2-6x-7}$

b) $f(x)=\dfrac{7}{5x-2}$

c)



**Exercise 3: (3 ptos)** Work out:

a) $\lim\limits_{x\to 3}\dfrac{x^2-9}{x^2+2x-15}=$ (0.5)

b) $\lim\limits_{x\to+\infty}\dfrac{5x-8}{x^2-25}=$ (0.25)

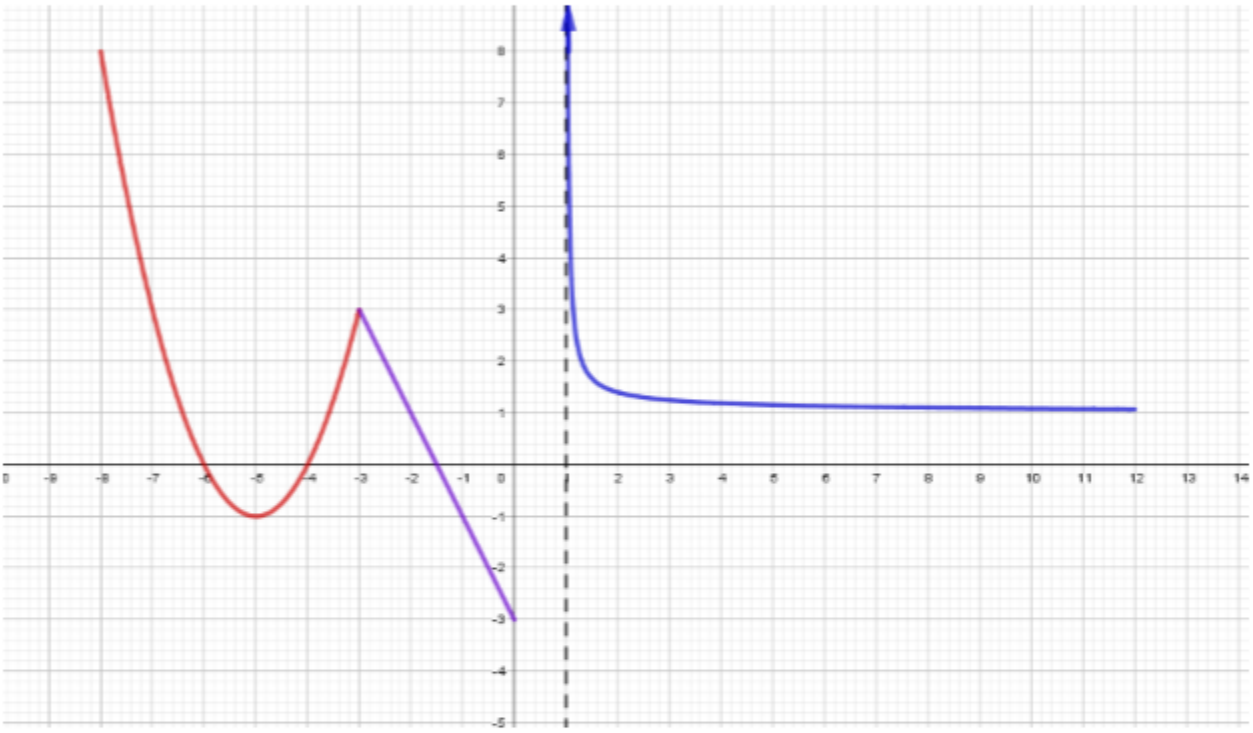
c) $\lim\limits_{x\to+\infty}\left(3x-\dfrac{3x^2-7x}{x+2}\right)=$ (0.75)

d) $\lim_{x\to -2} \frac{7x}{x+2} =$ (0.75)

e) $\lim_{x\to +\infty} \frac{7x-4}{3x-2} =$ (0.25)

f) $\lim_{x\to 1} \frac{x-3}{x^2-2x+1} =$ (0.5)

**Exercise 4: (2 ptos)** Given the following graph of a certain function (the distance between consecutive marks in the axes is one):



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