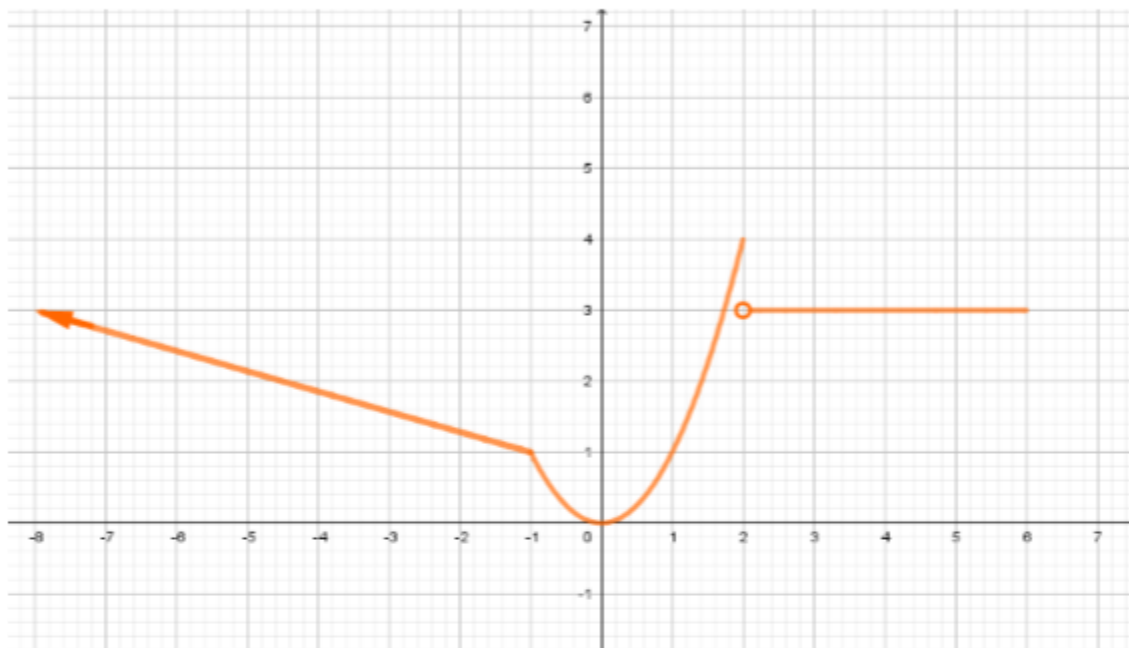


FUNCTIONS TEST - 3º ESO

Exercise 1: (0.5 points) Draw a graph that doesn't represent a function. Why?

Exercise 2: (1.75 points) Given the following graph of a certain function:



- Indicate its domain and its image. Is it a continuous function? Why?
- Determine the points where the function crosses the axes
- Study its monotony
- Study the local and global extrema

Exercise 3: (0.75 points) Sketch the graph of a function that fulfills all the following characteristics at the same time:

- Its domain is $(-7, -1] \cup [2, +\infty)$
- It crosses the axes at the points $(-5, 0)$ and $(3, 0)$
- It has a minimum at $x = -3$ and a maximum at $x = 7$, either local or global

Exercise 4: (2.25 points)

- Work out the equation of the straight line that passes through the point $A(5, -1)$ and has a slope $m = -3$
- Work out the equation of the straight line that passes through the points $A(-2, 1)$ and $B(6, 5)$
- Work out the equation of the straight line that is parallel to $6x - 2y + 7 = 0$ and passes through the point $P(2, -5)$

Exercise 5: (0.75 points) Indicate the value of the slope of the straight line $5x - 7y - 9 = 0$, and the point where it crosses the y-axis

Exercise 6: (1.75 points) Plot the graph of the function $f(x) = -x^2 + 7x - 12$, indicating its direction, studying the points where it crosses the axes and finding the coordinates of the vertex.

Exercise 7: (2.25 points) Plot the graph of the piecewise function given below

$$f(x) = \begin{cases} 4 & x < -2 \\ 5 - 3x & -2 \leq x \leq 1 \\ x^2 - 6x + 8 & 1 < x < 6 \end{cases}$$