



**FUNCTIONS TEST**  
**3º ESO**



**Exercise 1: (3 points)** Plot the graphs of the following functions, indicating their direction, studying the points where they cross the axes and finding the coordinates of the vertices. You can also find more points if needed.

a)  $f(x) = 5x - x^2$

b)  $f(x) = x^2 + 6x + 9$

**Exercise 2: (4 points)**

a) **(1.5)** Find the **general** equation of the straight line that passes through the points  $A(3, -1)$  and  $B(7, 2)$

b) **(0.75)** Find the **general** equation of the straight line that passes through the point  $Q(4, -5)$  and has a slope  $m = 7$

c) **(0.75)** Work out the explicit equation of the straight line that is parallel to  $3x - 8y - 5 = 0$  and passes through the point  $P(2, -3)$ .

d) **(1)** Given the straight line  $4x - 9y - 1 = 0$  indicate the slope and the y-intercept.

**Exercise 3: (3 points)** Plot the graph of the piecewise function given below

$$f(x) = \begin{cases} 3 - 2x & x < -1 \\ 5 & -1 < x < 2 \\ x^2 - 9x + 18 & 2 \leq x \leq 8 \end{cases}$$

