UNIT 10: FUNCTIONS AND GRAPHS

Exercise 1: Plot the graph of the following functions:

a) $y = 2x - 5$

b) $y = 3 - 2x$

c) $y = 9 - 3x$

d) $y = 3x - 4$

Exercise 2: Plot the graph of the following functions:

a) $y = 4x + 7$

b) $y = -5x$

c) $y = 7$

d) $y = \dfrac{x}{2} - 1$

e) $y = \dfrac{x}{10} + 48$

f) $y = \dfrac{5x - 1}{3}$

Exercise 3: Plot the graph of the following functions:

a) $y = x^2 + 2$

b) $y = x^2 - 1$

c) $y = x^2 - 2x$

Exercise 4: Plot the graph of the following parabolas:

a) $y = x^2 - 5x + 6$

b) $y = x^2 + x$

c) $y = x^2 - 9$

d) $y = 4 - x^2$

e) $y = 2x^2$

f) $y = x^2 - 6x$

Exercise 5: Plot the graph of the following parabolas finding first the coordinates of the vertex:
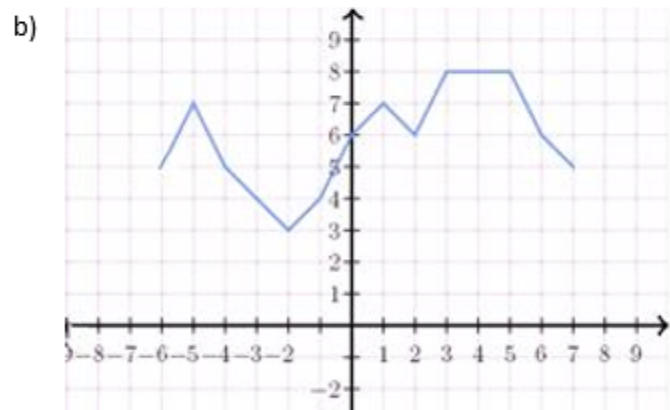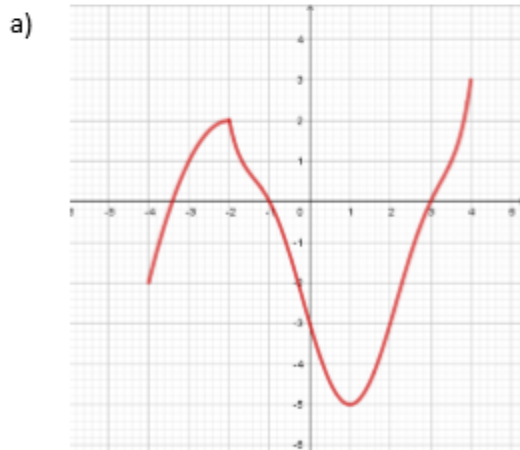
a) $y = x^2 - 2x + 1$
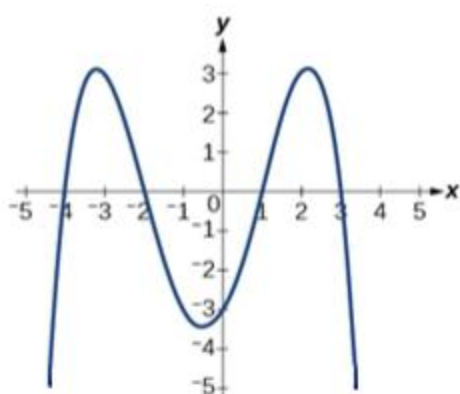
b) $y = x^2 + 2x - 3$

c) $y = x^2 - 8x + 7$

d) $y = 7 - x^2$

Exercise 6: Find the domain and the range of the following functions:

a)

b)

Exercise 7: Find the domain and the range of the following functions and indicate the points where they cross the axes. Are they continuous functions?
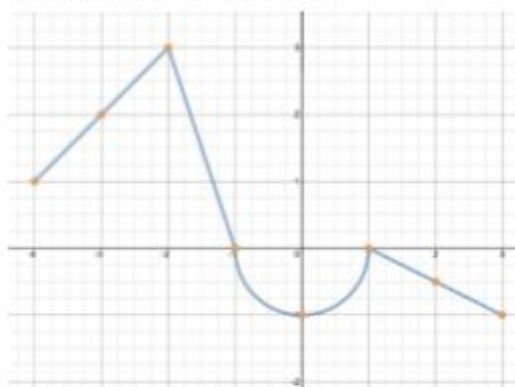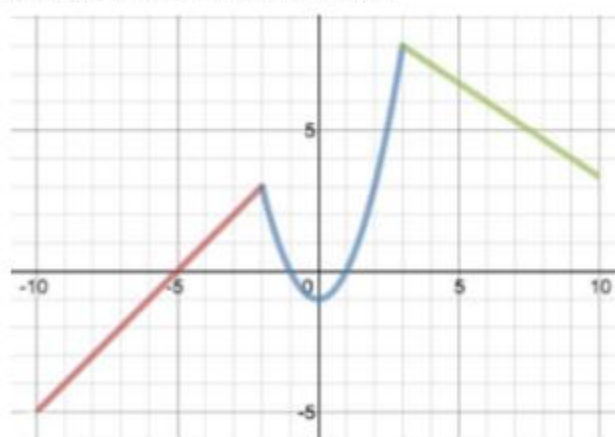
a)

b)

Exercise 8: Given the following graph of a certain function:

a) Indicate its domain and its image. Is it a continuous function? Why?
b) Determine the points where the function crosses the axes
c) Study its monotony
d) Study the extrema

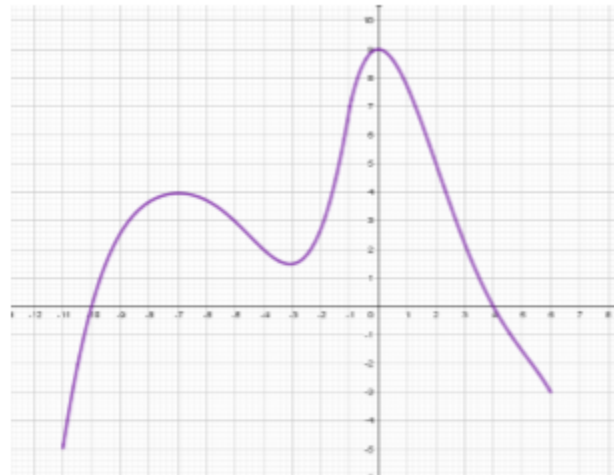**Exercise 9:** Given the following graph of a certain function:

a) Indicate its domain and its image. Is it a continuous function? Why?
b) Determine the points where the function crosses the axes
c) Study its monotony
d) Study the extrema

Exercise 10: Given the following graph of a certain function:
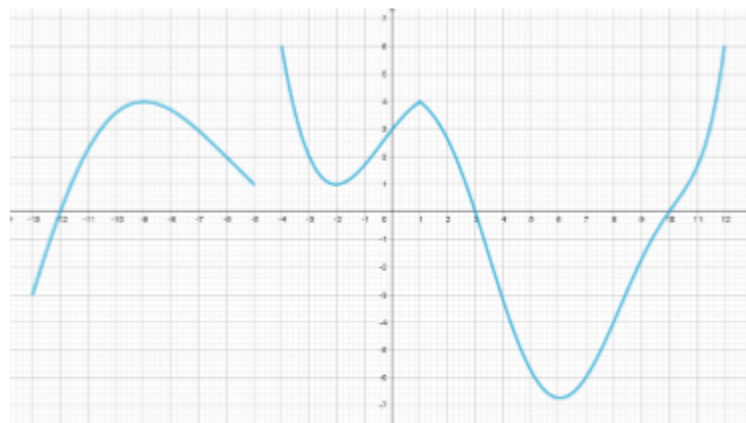

    a) Indicate its domain and its image. Is it a continuous function? Why?
    b) Determine the points where the function crosses the axes
    c) Study its monotony
    d) Study the extrema

Exercise 11: Given the following graph of a certain function:

    a) Indicate its domain and its image. Is it a continuous function? Why?
    b) Determine the points where the function crosses the axes
    c) Study its monotony
    d) Study the extrema

Exercise 12: A merry-go-round speeds up for two minutes until it reaches a speed of 10 km/h. It stays like that for seven minutes and then slows down for a minute until it comes to a complete stop. Five minutes later, it starts another trip. Plot the time-speed graph using Geogebra.