Exercise 1: (1.75 ptos) Find the values of the indeterminates:
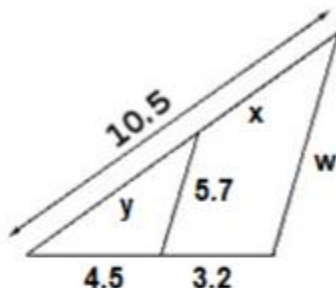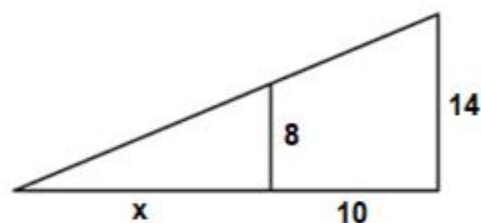
a)

b)

Exercise 2: (0.75 ptos) Find the axial diagonal of a cube if the sides have lengths of 12 cm

Exercise 3: (1.75 ptos) Work out the value of the area of a regular pentagonal pyramid if the length of the side of the base is 13 cm, its radius measures 10 cm and the edge of the faces has a length of 12 cm. Find also the value of the altitude that goes from the vertex to the center of the base.
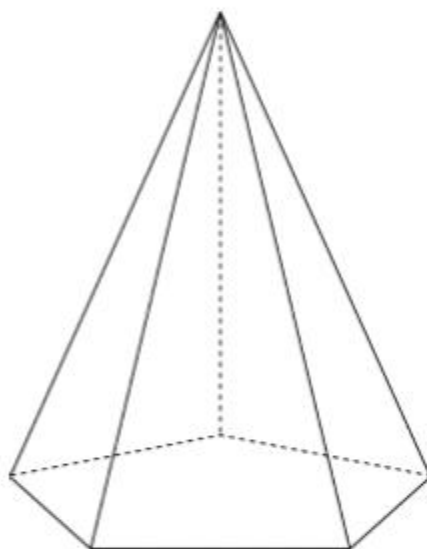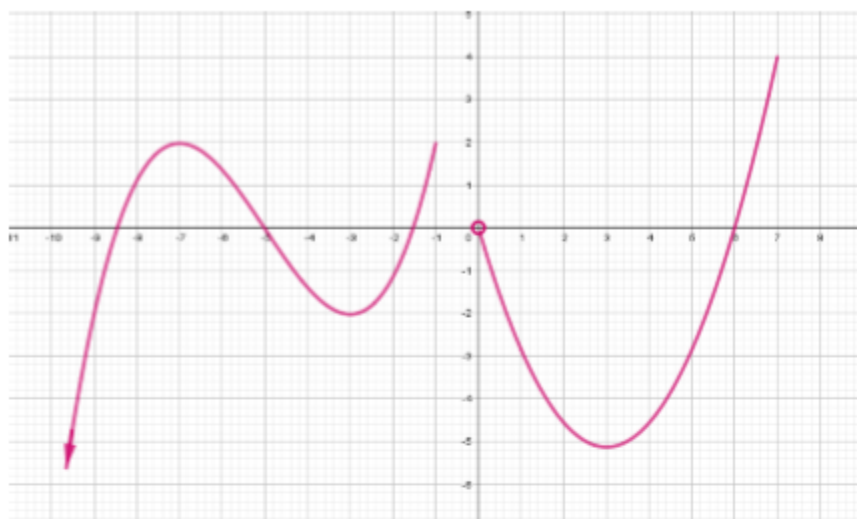
Exercise 4: (1 pto) Find the domain of the following functions

a) $f(x) = \dfrac{7x+3}{x^2-1}$

b) $f(x) = \sqrt[4]{x+3}$

a) Indicate its domain and its image

c) Study its monotony

d) Study the extrema

Exercise 6: (1.75 points)

a) Find the equation of the straight line that goes through the points $P(-1,12)$ and $Q(1,-2)$

b) Given the equation of the straight line $2x - y - 3 = 0$, find the equation of a parallel line that goes through the point $A(3,-4)$

c) Find the **general** equation of the straight line given by $y = \dfrac{3x}{5} - \dfrac{1}{2}$

Exercise 7: (1.5 points) Plot the graph of the piecewise function, studying all the characteristics of the parabola:

$$f(x) = \begin{cases} 7 - 2x & x < 2 \\ x^2 - 8x + 12 & x \geq 2 \end{cases}$$