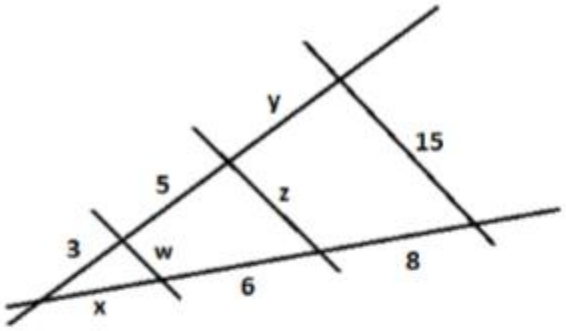
THIRD TERM GLOBAL TEST - 3º ESO

Exercise 1: (1.25 points) Find the value of the indeterminates:



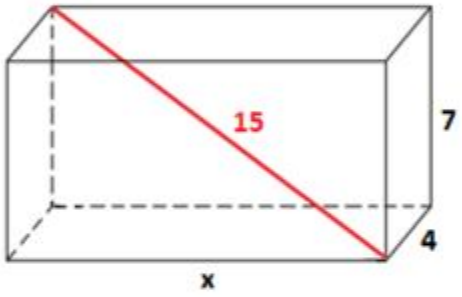
$x = 3.6$

$y = 6.67$

$w = 3.07$

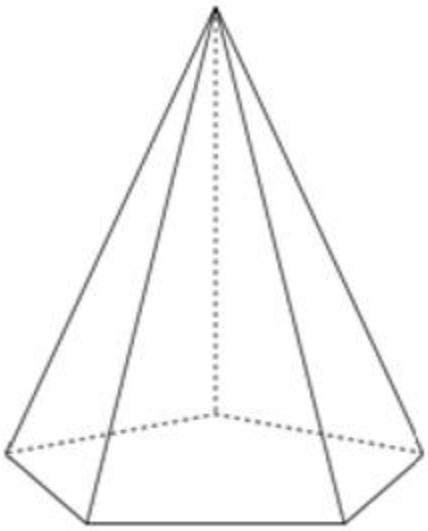
$z = 8.18$

Exercise 2: (1 point) Find the missing side of this cuboid:



$x = 12.65$

Exercise 3: (1.25 points) Work out the area of a regular pentagonal pyramid if the altitude measures 15 cm, the radius of the base has a length of 12 cm and the side of the base has a length of 9 cm.

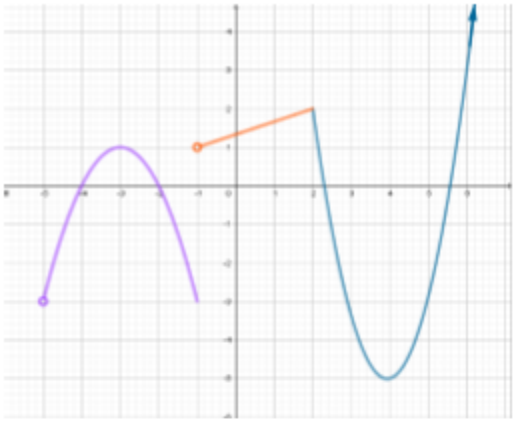


$A_B = 272.72 \text{ cm}^2$

$A_L = 463.68 \text{ cm}^2$

$A_{PYR} = 736.4 \text{ cm}^2$

Exercise 4: (1.75 points) Given the following graph of a certain function:



a) Indicate its domain and its image $\text{Dom } f = (-5,1] \cup (1,+\infty)$ $\text{Im } f = [-5,+\infty)$

b) Determine the points where the function crosses the axes

OX $x=-4,\ x=-2,\ x=2.25,\ x=5.5$ OY $y=1.25$

c) Study its monotony

Increases: $(-5,-3) \cup (-1,2) \cup (4,+\infty)$ Decreases: $(-3,-1) \cup (2,4)$

d) Study the relative and absolute extrema

Relative maxima: $x=-3,\ x=2$ Absolute maximum: $\nexists$

Relative minima: $x=-1\ \ x=4$ Absolute minimum: $x=4$

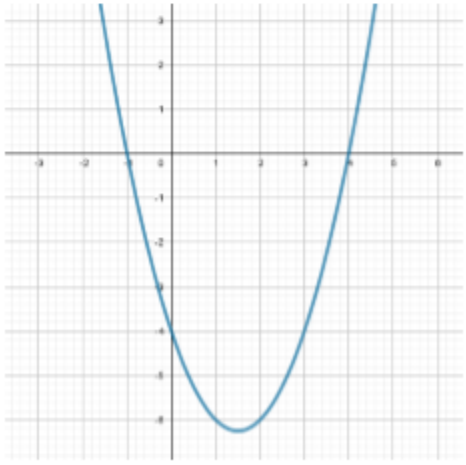
Exercise 5: (1.5 points)

a) Work out the **general** equation of the straight line that passes through the points $P(-2,5)$ and $Q(3,-1)$ $\boxed{6x+5y-13=0}$

b) Work out the equation of the straight line that is parallel to $7x+2y-1=0$ and passes through the point $A(-3,5)$. Indicate the value of the slope and the y-intercept.

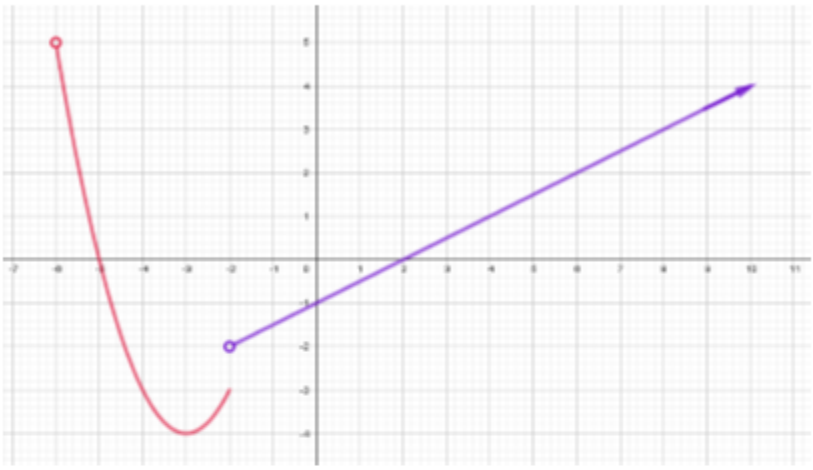
$\boxed{7x+2y+11=0}$ $\boxed{m=-7/2}$ $\boxed{n=-11/2}$

Exercise 6: (1 point) Plot the graph of the function $f(x)=x^2-3x-4$, indicating its direction, studying the points where it crosses the axes and finding the coordinates of the vertex. Create also a table with at least a couple of values.



Exercise 7: **(1.5 points)** Plot the graph of the piecewise function given below

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



Exercise 8: **(0.75 points)** Find the sides of a right-angled triangle if they have lengths of x, $x-1$ and $x+1$ cm

The sides of the triangle measure 3 cm, 4 cm and 5 cm