FUNCTIONS AND TRIGONOMETRY TEST

4º ESO

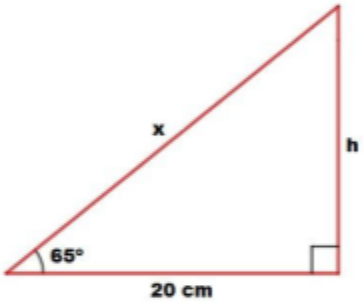
Exercise 1: (1 pto) If $\cos\alpha = \frac{5}{13}$ find the values of $\sin\alpha$ and $\tan\alpha$ **without using a calculator**, and the value of the angle α

$\sin\alpha = \frac{12}{13}$ $\tan\alpha = \frac{12}{5}$ $\alpha = 67°22'48"$

Exercise 2: (1.25 ptos) If $\tan\alpha = 1.8$ find the values of the other five trigonometric functions

$\cos\alpha = 0.49$ $\sin\alpha = 0.87$ $\sec\alpha = 2.06$ $\csc\alpha = 1.15$ $\cot\alpha = 0.56$

Exercise 3: (0.75 ptos) Find the values of x and h



$x = 47.32$ cm

$h = 42.89$ cm

Exercise 4: (1.5 ptos)

a) Find the **general** equation of the straight line that goes through the points $A(-2,3)$ and $B(7,5)$

$2x - 9y + 31 = 0$

b) Find the equation of a straight line that's paralel to $5x - 7y - 9 = 0$ and goes through the point $P(4,-5)$

$5x - 7y - 55 = 0$

Exercise 5: (2 ptos) Work out:

a) $\log_5 \frac{\sqrt{125}\cdot\sqrt[3]{625}}{\sqrt[7]{5}} = \frac{113}{42}$

b) $\frac{\log 512 - \log 64}{\log 2 + \log 16} = \frac{3}{5}$

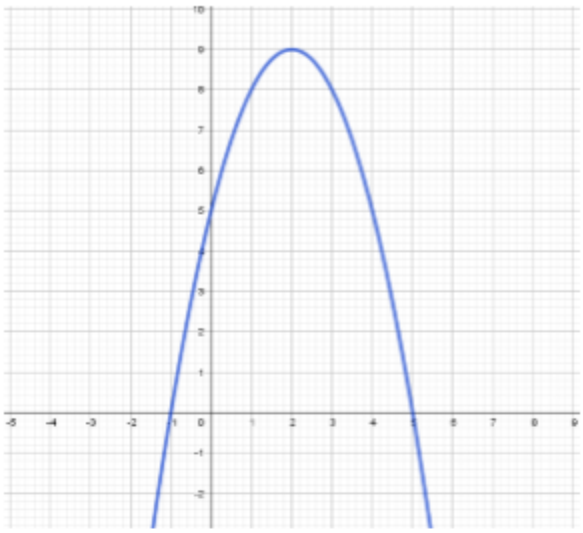
Exercise 6: (1 pto) Sketch the graph of the parabola $f(x)=-x^2+4x+5$, studying all of its characteristics

$\underline{OX}]\ (-1,0)\ \ (5,0)$

$\underline{OY}]\ (0,5)$

$V(2,9)$

$f(1)=8$



Exercise 7: (2.5 ptos) Plot the graph of the piecewise function:

$$f(x)=\begin{cases} 2^x & x<1 \\ \dfrac{3}{x-1} & 1<x<4 \\ 1 & 4\le x<10 \end{cases}$$