

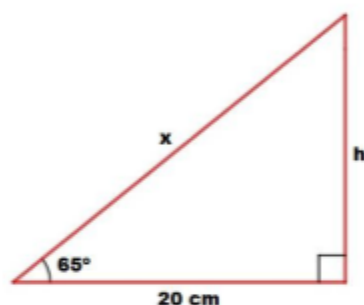
FUNCTIONS AND TRIGONOMETRY TEST

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

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

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



Exercise 4: (1.5 ptos)

- Find the **general** equation of the straight line that goes through the points $A(-2,3)$ and $B(7,5)$
- Find the equation of a straight line that's parallel to $5x - 7y - 9 = 0$ and goes through the point $P(4,-5)$

Exercise 5: (2 ptos) Work out:

- $\log_5 \frac{\sqrt{125} \cdot \sqrt[3]{625}}{\sqrt[7]{5}} =$
- $\frac{\log 512 - \log 64}{\log 2 + \log 16} =$

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

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

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

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

$$\sin \alpha = \frac{12}{13}$$

$$\tan \alpha = \frac{12}{5}$$

$$\alpha = 67^\circ 22' 48''$$

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

$$\cos \alpha = 0.49$$

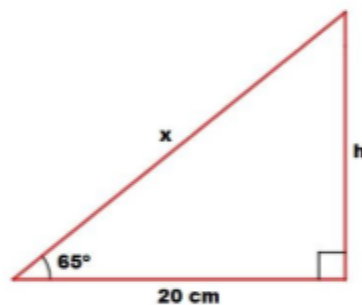
$$\sin \alpha = 0.87$$

$$\sec \alpha = 2.06$$

$$\csc \alpha = 1.15$$

$$\cot \alpha = 0.56$$

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



$$x = 47.32 \text{ cm}$$

$$h = 42.89 \text{ cm}$$

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

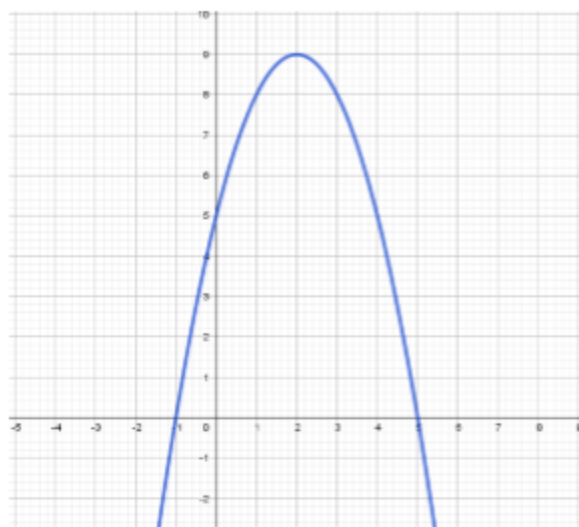
Exercise 6: (1 pto) Sketch the graph of the parabola $f(x) = -x^2 + 4x + 5$, studying all of its characteristics

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

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

$$V(2,9)$$

$$f(1) = 8$$



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

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

