SECOND TERM GLOBAL TEST
4° ESO

Exercise 1: (1 pto) Find the **general** equation of the straight line that goes through the points $P(3,-5)$ and $Q(8,4)$ $\boxed{9x-5y-52=0}$

Exercise 2: (2 ptos) Find the domain of the following functions:

a) $f(x)=\dfrac{x^2-1}{\sqrt[4]{x^2-5x+6}}$ $\quad \text{Dom } f=(-\infty,2)\cup(3,+\infty)$

b) $f(x)=\dfrac{2x-5}{7x+3}$ $\quad \text{Dom } f=\mathbb{R}-\{-3/7\}$

c) $f(x)=\dfrac{\sqrt{x-2}}{x^2-25}$ $\quad \text{Dom } f=[2,5)\cup(5,+\infty)$

Exercise 3: (2 ptos) Work out:

a) $\lim\limits_{x\to 2}\dfrac{x^2-7x+10}{x^2-4}=\dfrac{-3}{4}$

b) $\lim\limits_{x\to\infty}\left(x-\dfrac{3x^2-4x}{3x-5}\right)=\dfrac{-1}{3}$

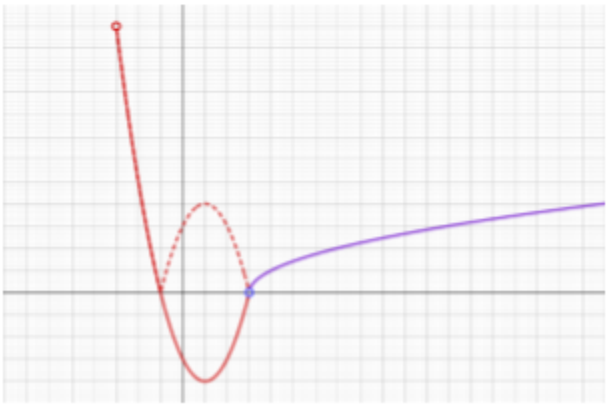
c) Find the horizontal and vertical asymptotes of the function $f(x)=\dfrac{9x-8}{x^2-16}$ $\rightarrow$ $\begin{cases}\underline{HA}| & y=0\\ \underline{AV}| & x=\pm 4\end{cases}$

Exercise 4: (1 pto) Work out $\dfrac{\log_7 78125-\log_7 3125}{\log_7 5+\log_7 25}=\dfrac{2}{3}$

Exercise 5: (2 ptos)

a) Sketch the graph of the piecewise function $f(x)=\begin{cases}x^2-2x-3 & -3<x<3\\ \sqrt{x-3} & x>3\end{cases}$

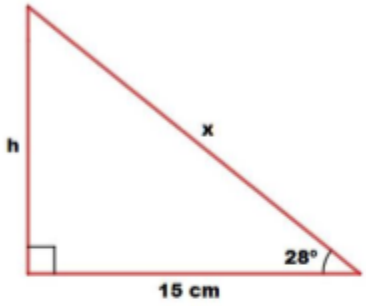
b) With a dotted line or a different color plot the graph of $|f(x)|$



Exercise 6: **(1.25 ptos)** If $\sin\alpha = 0.37$ find the value of the other five trigonometric functions and α

$\cos\alpha = 0.93$ $\tan\alpha = 0.4$ $\sec\alpha = 1.08$ $\csc\alpha = 2.7$ $\cot\alpha = 2.51$ $\alpha = 21°42'56"$

Exercise 7: **(0.75 ptos)** Find the values of x and h



$x = 16.99$ cm

$h = 7.98$ cm