

Name: Franco

1) Mark "True" or "False", and explain your answer (1 point each)

(a) 2 is in the domain of $f(x) = \frac{x^2+1}{x-1}$ ~~True~~ False

Yes, $f(2) = \frac{2^2+1}{2-1} = 5$

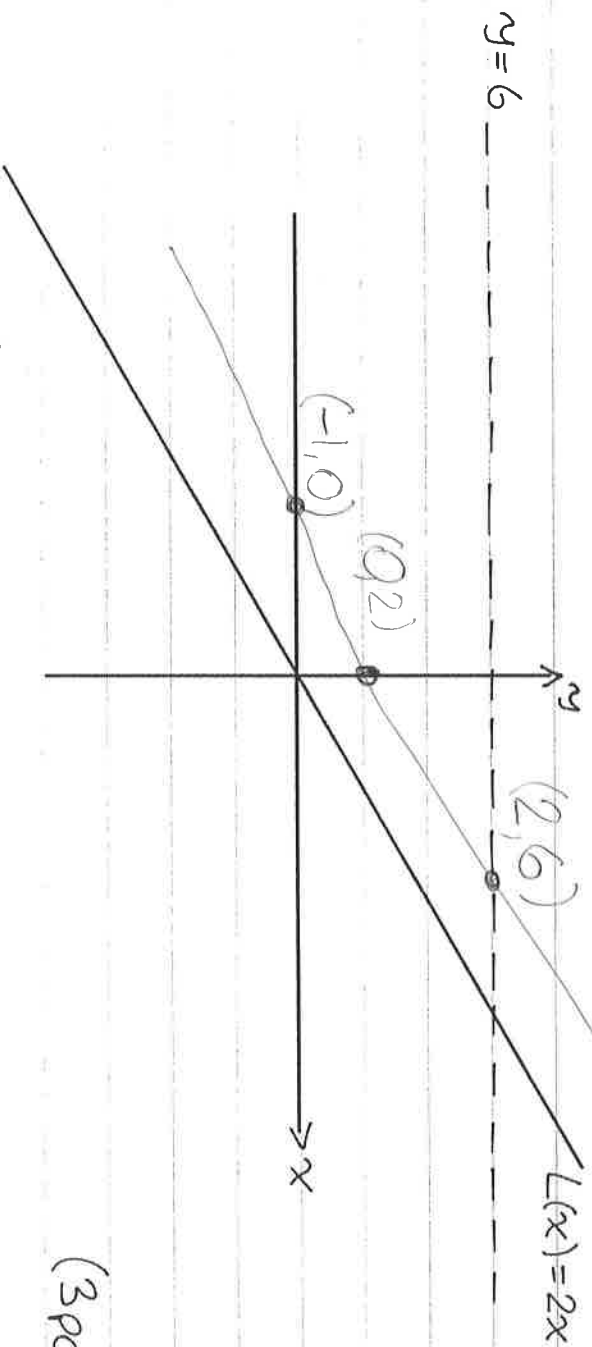
(b) 3 is in the domain of $g(x) = \frac{x^2-5x+6}{x-3}$ True ~~False~~

No, $f(3) = \frac{3^2-15+6}{3-3} = \frac{0}{0}$

(c) 0 is in domain of $h(x) = \frac{1}{\sin(x)\cos(x)}$ True ~~False~~

No, $h(0) = \frac{1}{\sin(0)\cos(0)} = \frac{1}{0 \cdot 1} = \frac{1}{0}$

2) $L(x) = 2x$ is represented in the following graph. Draw $L(x)+2$ and find its intersection with $y = 6$



(3 points)

3) Calculate $\lim_{x \rightarrow 1} \frac{x^2-6}{x^2+1}$, $\lim_{x \rightarrow 1} \frac{x^2-1}{x-1}$ (1 point each)

$A = \frac{1^2-6}{1^2+1} = \frac{-5}{2} = -\frac{5}{2}$

$B = \lim_{x \rightarrow 1} \frac{(x+1)(x-1)}{(x-1)} = \lim_{x \rightarrow 1} (x+1) = 2$

$= 2$