

Name: France

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

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

$$\text{No, } f(1) = \frac{1^2-1}{1-1} = \frac{0}{0}$$

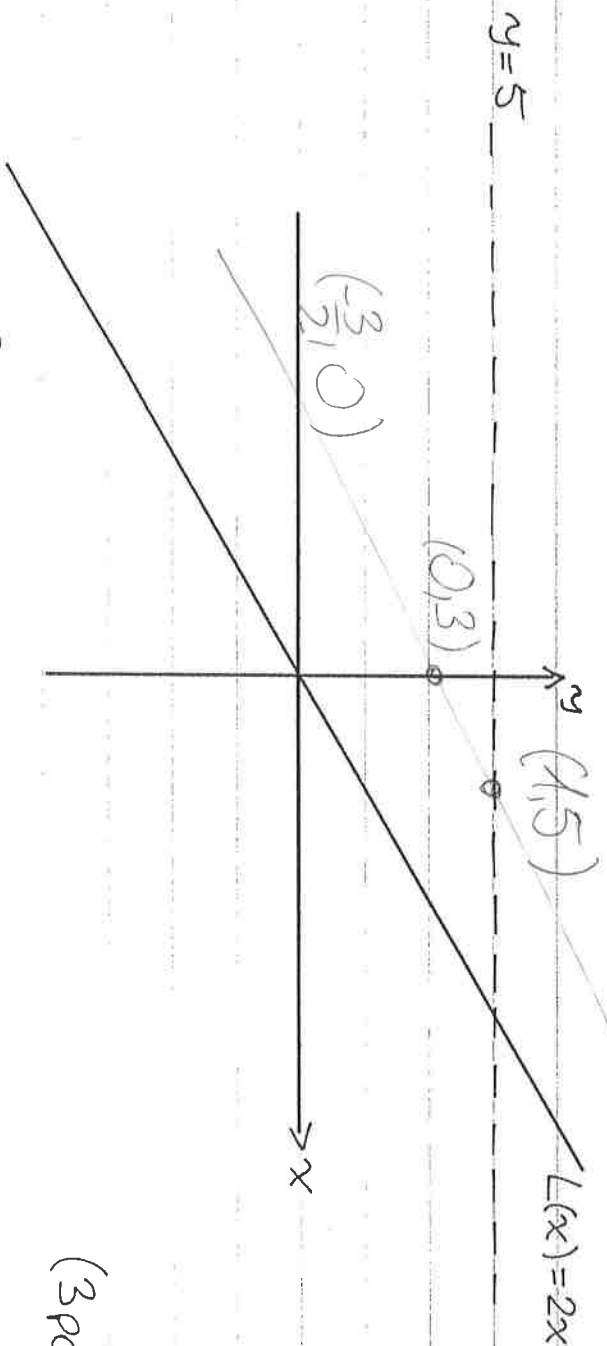
(b) 2 is in the domain of $g(x) = \frac{x^2-5x+6}{x-3}$ ~~True~~ False

$$\text{Yes, } g(2) = \frac{2^2-2\cdot 5+6}{2-3} = \frac{0}{-1} = 0$$

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

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

2) $L(x) = 2x$ is represented in the following graph. Draw $L(x)+3$ and find its intersection with $y=5$



(3 points)

3) Calculate $\lim_{x \rightarrow 1} \frac{x^2+6}{x^2+2}$, $\lim_{x \rightarrow 3} \frac{x^2-5x+6}{x-3}$ (1 point each)

$$A = \frac{1^2+6}{1^2+2} = \frac{7}{3}$$

$$B = \lim_{x \rightarrow 3} \frac{(x-2)(x-3)}{x-3} = \lim_{x \rightarrow 3} (x-2) = 1$$