

Key

1. a) Calculate a few values near $x = 1$ to find $\lim_{x \rightarrow 1} \frac{(x-1)}{x^2+x-2} f(x)$

x	$f(x)$
.99	
1.01	.332

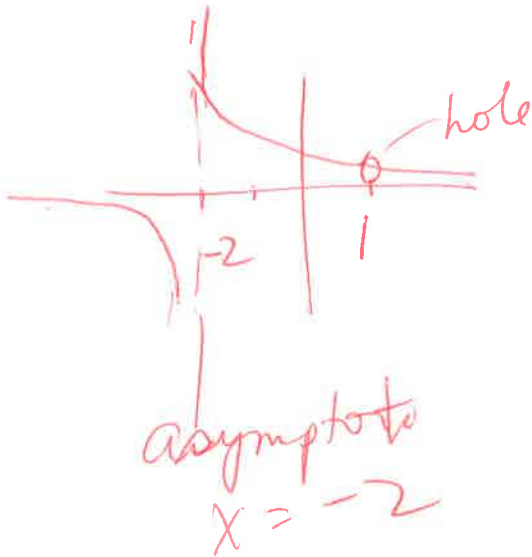
$$\frac{.99-1}{(.99)^2+.99-2} = \frac{-.01}{-.0299} = .3344$$

$$\frac{1.01-1}{(1.01)^2+1.01-2} = \frac{.01}{.0301} = .3322$$

~~limit~~ $\lim_{x \rightarrow 1} f(x) = .333$ or $\frac{1}{3}$

- b) Sketch the graph of the function $f(x) = \frac{(x-1)}{x^2+x-2}$

$$= \frac{\cancel{x-1}}{(x+2)(\cancel{x-1})} = \frac{1}{x+2}$$

hole at $x=1$ 

$$f(x) = \frac{1}{x+2}$$

Shift left
reciprocal function