

10.8 $f(x) = 1 + \frac{x}{(1+x)^2}$

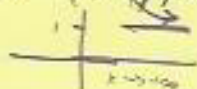
Left End: $x \rightarrow -\infty$ $f(x) = 1 + \frac{x}{(1+x)^2} \rightarrow 1 + \frac{x}{x^2} = 1 + \frac{1}{x} \xrightarrow{x \rightarrow -\infty} 1^- \rightarrow 1$

$\Rightarrow f(x)$ approaches $y=1$ from below



Right End: $x \rightarrow +\infty$ $f(x) = 1 + \frac{x}{(1+x)^2} \rightarrow 1 + \frac{x}{x^2} \rightarrow 1 + \frac{1}{x} \xrightarrow{x \rightarrow +\infty} 1^+ \rightarrow 1$

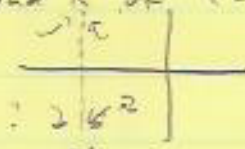
$\Rightarrow f(x)$ approaches $y=1$ from above



10.9 $f(x) = 1 + \frac{x}{(1+x)^2}$ Vertical Asymptotes occur where the denominator

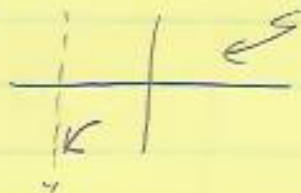
$\Rightarrow$ VA when $x = -1$

use test points to L and R of $x = -1$ to determine $\pm$ on each side of $x = -1$



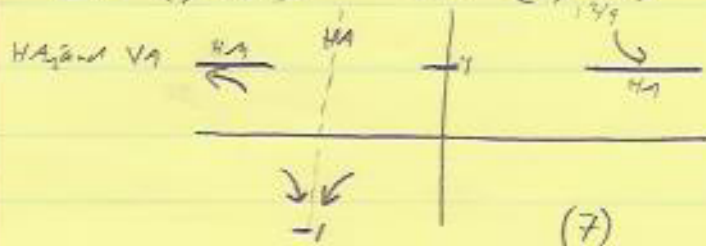
$f(-1.1) = 1 + \frac{(-1.1)}{(1-1.1)^2} = 1 - \frac{(1.1)}{(1)^2} = -109$ neg $\Rightarrow$ down to $-\infty$ on left of -1

$f(-.9) = 1 + \frac{(-.9)}{(1-.9)^2} = 1 - \frac{(.9)}{(.1)^2} = -21.5$ neg $\Rightarrow$ down to $-\infty$ on right of $x = -1$



Summary x-ints: $(-0.4, 0)$ and $(-2.6, 0)$ / y-int $(0, 1)$

CP: $(1, 1.25)$ IP: $(2, 11/9)$



Graph:

