Section 1.1 (cont.)

Exomple: 
$$y = \frac{x^2 - 9}{x - 3}$$

Approch 3

lim  $\frac{x^2 - 9}{x - 3} = \lim_{x \to 3} \frac{(x - 3)(x + 3)}{(x - 3)} = \lim_{x \to 3} \frac{x + 3}{x - 3} = 6$ 

Note:  $x^2 - 9 = x^2 - 3^2 = (x - 3)(x + 3)$ 

Notic: 
$$x^2 - 9 = x^2 - 3^2 = (x - 3)(x + 3)$$
  
in general:  
 $x^2 - 0^2 = (x - 0)(x + 0)$ 

Exomple: 
$$f(x) = \frac{x^2 - 5x + 6}{x - 2}$$

Fird 
$$\lim_{x\to 2} x^2 - 5x + 6$$

Approach 1: 
$$\frac{x}{1.99} = 1.01$$

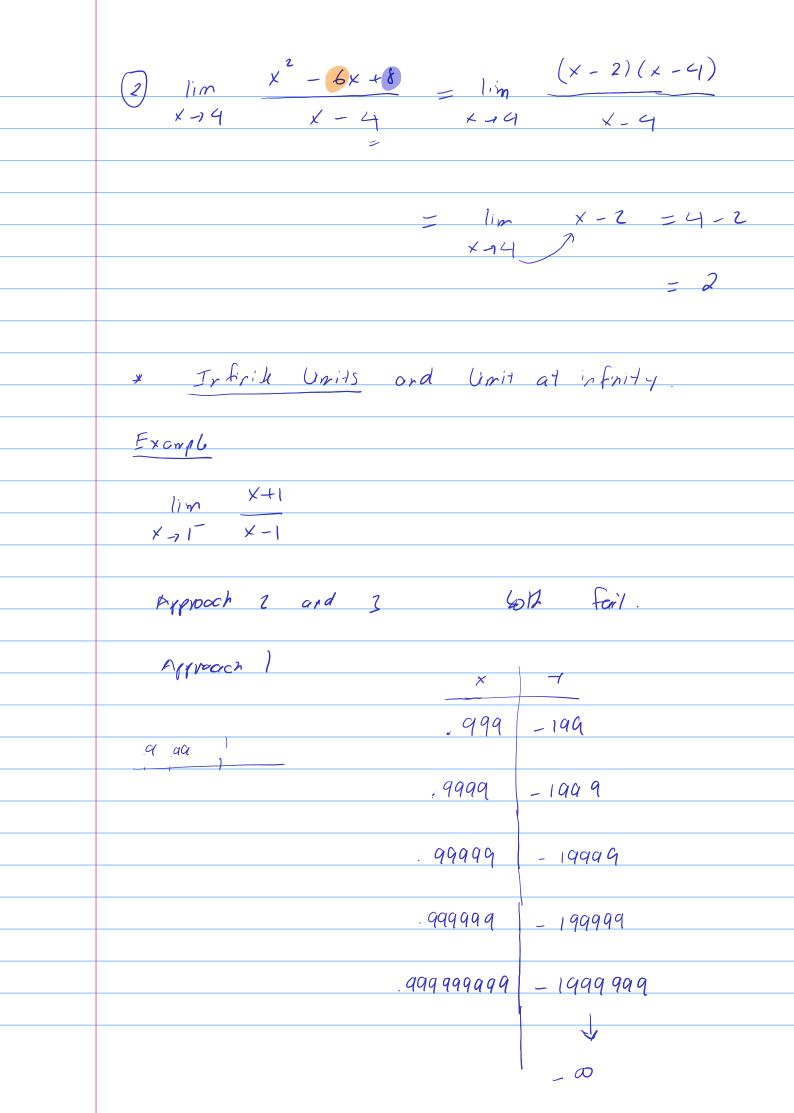
1.999 - 1.001

1.999 - 1.0001

-1

ìγ , Approach 2  $\lim_{X \to 2} \frac{x^2 - 5x + 6}{x - 2} = \lim_{X \to 2} \frac{(x - 2)(x - 3)}{(x - 2)} = \lim_{X \to 2} \frac{x - 3}{x - 2}$ - 2-3 Example: Fird the follows × -> 1 × -1 2) 11m x2 - 6x +8 ×-, 4 × - 4 Soleilion  $\lim_{\chi \to 1} \frac{\chi^2 - 1}{\chi \to 1} = \lim_{\chi \to 1} \frac{(\chi - 1)(\chi + 1)}{\chi \to 1}$   $\chi \to 1 \quad \chi \to 1 \quad \chi \to 1 \quad \chi \to 1$ = lim x+1 = 1+1 - 2

Approach 2: Fail because we cannot plug X = 2



lim 7 = -00  $\lim_{x \to 1^{\frac{4}{3}}} T = 0$ 1,0060 1 20000 1 1.000091 2000001 (x) Unit at infinity  $\lim_{n \to \infty} \left( x^{2} + 1 \right) = \omega$ X-700 lim = 0 X 100 X Section 1.2: Computers limits lim fix) Xaa I dea: For the following furcher fix)

