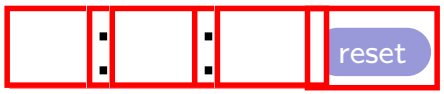
Bellwork 9/11

Using the tables below, estimate:

$$\lim_{x \to -1} \left(\frac{x+1}{x^2-1} \right)$$

x	$\frac{x+1}{x^2-1}$
-1.1	
-1.01	
-1.001	

x	$\frac{x+1}{x^2-1}$
-0.9	
-0.99	
-0.999	



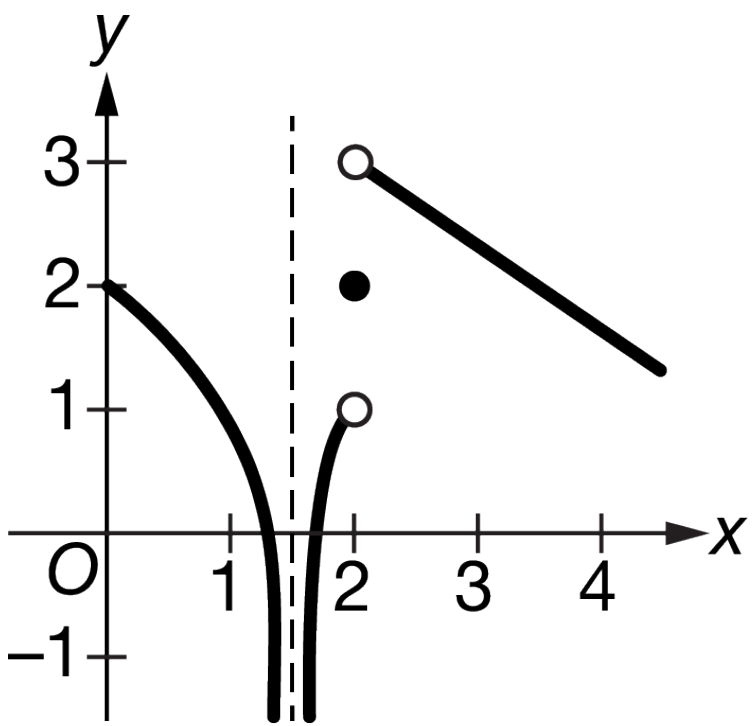
Bellwork 9/11 - Solutions

x	$\frac{x+1}{x^2-1}$
-1.1	-0.4762...
-1.01	-0.4975...
-1.001	-0.4998...

x	$\frac{x+1}{x^2-1}$
-0.9	-0.5263...
-0.99	-0.5025...
-0.999	-0.5003...

$$\lim_{x \to -1} \left(\frac{x+1}{x^2-1} \right) = -0.5$$

Exercise 1



Graph of f

Find $\lim_{x \to 1.5} f(x)$

Find $\lim_{x \to 0} f(x)$

Find $\lim_{x \to 2^+} f(x)$

Find $\lim_{x \to 4} f(x)$

reset

Exercise 1 - Solutions

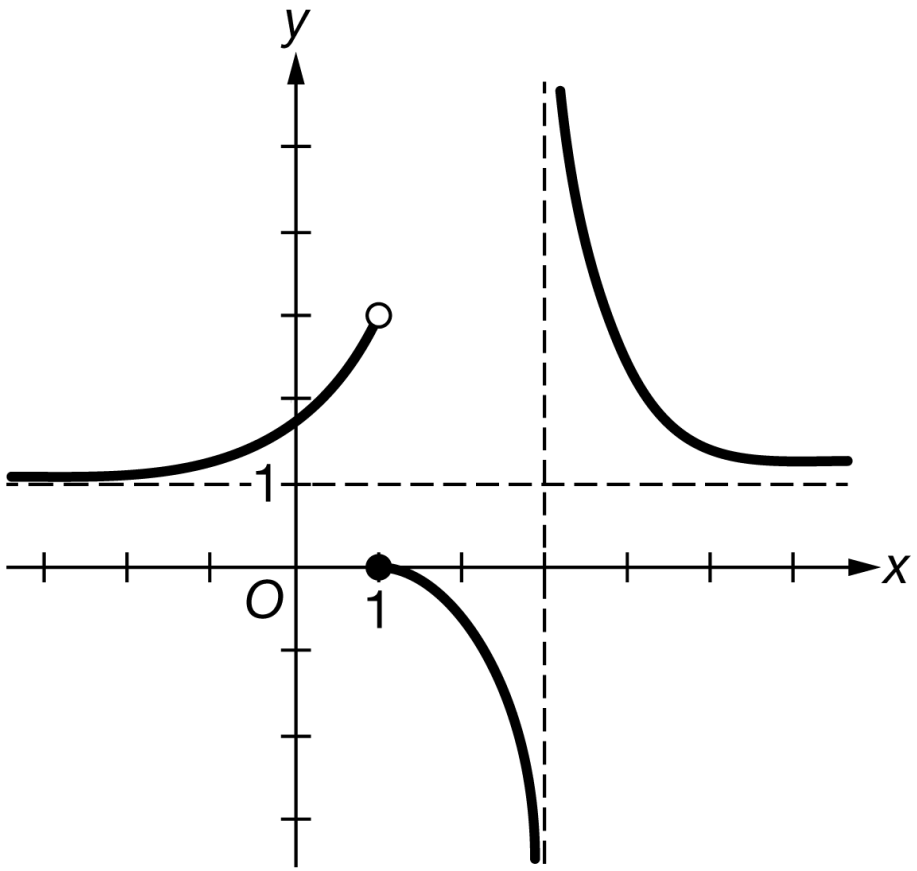
$$\lim_{x \to 1.5} f(x) = -\infty$$

$$\lim_{x \to 0} f(x) = 0$$

$$\lim_{x \to 2^+} f(x) = 3$$

$$\lim_{x \to 4} f(x) = 1.5$$

Exercise 2



Graph of f

reset

Find $\lim_{x \to 1^-} f(x)$

Find $\lim_{x \to 1^+} f(x)$

Find $\lim_{x \to 3^-} f(x)$

Find $\lim_{x \to 3^+} f(x)$

Exercise 2 - Solutions

$$\lim_{x \to 1^-} f(x) = 3$$

$$\lim_{x \to 1^+} f(x) = 0$$

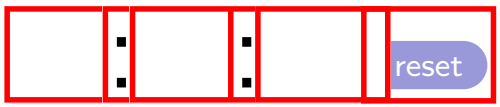
$$\lim_{x \to 3^-} f(x) = -\infty$$

$$\lim_{x \to 3^+} f(x) = \infty$$

Exercise 3

Find:

$$\lim_{x \to 2^-} \left(\frac{1 - x^2}{x - 2} \right) \quad \text{and} \quad \lim_{x \to 2^+} \left(\frac{1 - x^2}{x - 2} \right)$$



Exercise 3 - Solutions

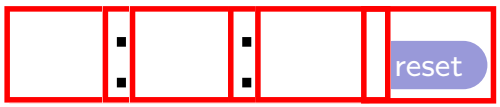
$$\lim_{x \to 2^-} \left(\frac{1 - x^2}{x - 2} \right) = \infty$$

$$\lim_{x \to 2^+} \left(\frac{1 - x^2}{x - 2} \right) = -\infty$$

Exercise 4

Find:

$$\lim_{x \to 1} \left[\frac{x-3}{(x-1)^2} \right]$$



Exercise 4 - Solutions

$$\lim_{x \to 1} \left[\frac{x-3}{(x-1)^2} \right] = -\infty$$