

Calculus 1 Exam 1 Review Problems

1. Let $f(x)$ be the mappings of VCU students to the classes they are taking this semester. Is this a function? If so, what is the domain and range?

1. Written Solution
2. No Video Solution

2. Determine the domain of

$$\frac{\sqrt{x+4}}{x-2}$$

1. Written Solution
2. Video Solution

3. Let

$$f(x) = \begin{cases} \frac{1}{x-2} & \text{if } x \leq 0 \\ x^2 - \frac{1}{2} & \text{if } 0 < x < 1 \\ x + 1 & \text{if } 1 \leq x \end{cases}$$

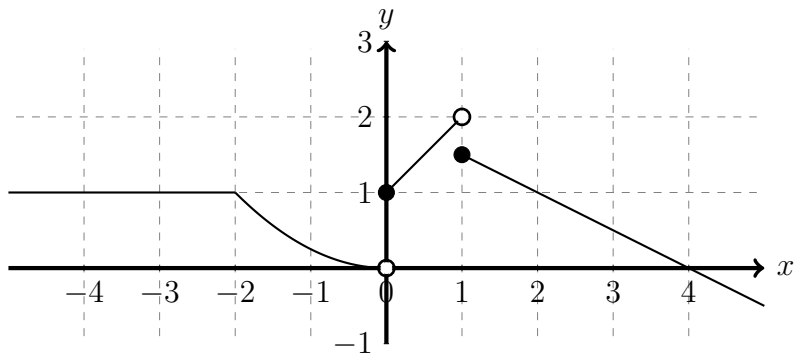
Then find

$$\lim_{x \rightarrow 1^+} f(x) = \quad \lim_{x \rightarrow 1^-} f(x) = \quad \lim_{x \rightarrow 1} f(x) = \quad f(1) =$$

$$\lim_{x \rightarrow 0^+} f(x) = \quad \lim_{x \rightarrow 0^-} f(x) = \quad \lim_{x \rightarrow 0} f(x) = \quad f(0) =$$

1. Written Solution
2. Video Solution

4. Let $f(x)$ be given by the following graph



Then find

$$\lim_{x \rightarrow 1^+} f(x) = \quad \lim_{x \rightarrow 1^-} f(x) = \quad \lim_{x \rightarrow 1} f(x) =$$

$$\lim_{x \rightarrow 0^+} f(x) = \quad \lim_{x \rightarrow 0^-} f(x) = \quad \lim_{x \rightarrow 0} f(x) =$$

1. Written Solution
 2. Video Solution
5. Find

$$\lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x - 2}$$

6. Find

$$\lim_{x \rightarrow 0} \frac{\frac{1}{2+x} - \frac{1}{2}}{x}$$

7. Find

$$\lim_{x \rightarrow 0} \frac{\sqrt{9+x} - 3}{x}$$

1. Written Solution
2. Video Solution 1

3. Video Solution 2
4. Video Solution 3
8. Find the horizontal and vertical asymptotes of

$$f(x) = \frac{x^2 + 3x - 4}{2x^2 + x - 3}$$

1. Written Solution
2. Video Solution