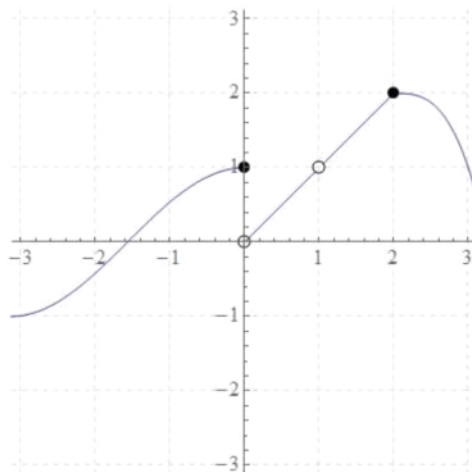


No calculators are allowed on this quiz. Please read each question carefully, follow directions and clearly mark your solutions. **Show your work for full credit.**

1. (4 points) For the function $f(x)$ graphed below, find the following (justify your answer if the limit does not exist)



(a) $f(1)$ DNE

(c) $\lim_{x \rightarrow 0} f(x)$ DNE b/c
 $\left. \begin{aligned} \lim_{x \rightarrow 0^+} f(x) &= 0 \\ \lim_{x \rightarrow 0^-} f(x) &= 1 \end{aligned} \right\} \text{different}$

(b) $\lim_{x \rightarrow 1} f(x) = 1$

(d) $\lim_{x \rightarrow 2} f(x) = 2$

2. (6 points) Find the limits:

(a) $\lim_{x \rightarrow -1} \frac{x^2 - 1}{x + 1} = \frac{1 - 1}{-1 + 1} = \frac{0}{0}$

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

$$(b) \lim_{x \rightarrow \infty} \frac{2x-5}{x^2+3} \cdot \frac{1}{x^2} = \lim_{x \rightarrow \infty} \frac{\frac{2}{x} - \frac{5}{x^2}}{1 + \frac{3}{x^2}} = \frac{0-0}{1+0} = \frac{0}{1} = \boxed{0}$$

$$(c) \lim_{x \rightarrow \infty} \frac{1}{x} = \boxed{0}$$

$$(d) \lim_{x \rightarrow 4^+} x - \sqrt{x} = 4 - \sqrt{4} = 4 - 2 = \boxed{2}$$