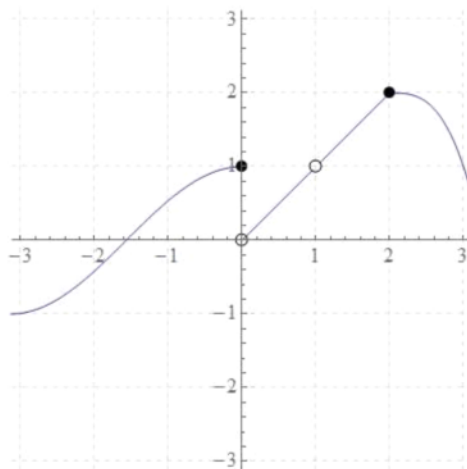


No calculators are allowed on this quiz. Please read each question carefully, follow directions and clearly mark your solutions. **Show your work for full credit.**

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



$$(a) f(0) = 1$$

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

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

$$(d) \lim_{x \rightarrow 0} f(x) \text{ DNE}$$

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

2. (6 points) Find the limits:

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

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

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

$\nearrow 0$ $\nearrow 0$
 $\searrow 0$

$$= \frac{\infty}{-1} = \boxed{-\infty}$$

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

$$(d) \lim_{x \rightarrow 0^-} x - \sqrt{x} = 0 - \sqrt{0} = \boxed{0}$$

Also, this limit should be by $x \rightarrow 0^+$ b/c

$$\lim_{x \rightarrow 0^-} \sqrt{x} \text{ DNE.}$$