251 - Worksheet 2

Name:

Draw a graph of the following function:

$$f(x) = \begin{cases} 2 & x < 0 \\ x + 2 & 0 < x < 1 \\ \sin(\pi x) & 1 \le x \le 3 \end{cases}$$

Now, use your graph to determine the following (if they exist):

$f(0) =$

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

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

$\lim_{x \to .5} f(x) =$

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

Draw a graph of a function, call it $g(x)$, with the following properties:

$\lim_{x \to 1} g(x) = 0$

$\lim_{x \to 2} g(x) = DNE,$

$g(x)$ is not defined at $x = 1$, $g(2) = 1$, $g(0) = 0$, $g(3) = 0$.

Determine the following:

$$\lim_{x \to 2} \frac{x^2 + 6x - 7}{x^2 - 1} =$$

$$\lim_{x \to 1} \frac{x^2 + 6x - 7}{x^2 - 1} =$$

$$\lim_{x \to -7} \frac{x^2 + 6x - 7}{x^2 - 1} =$$

$$\lim_{x \to -1} \frac{x^2 + 6x - 7}{x^2 - 1} =$$

$$\lim_{x \to 1} \frac{x^3 - 1}{x - 1} =$$