Name:

Class:

Free Response No Calculator: Practice

1. Consider the function $f(x) = \frac{x^2-x-6}{x^2+x-2}$

   (a) Give the zeros of $f(x)$.

   (b) Give the equation(s) of any vertical asymptotes. Justify using limits.

   (c) Give the equation(s) of any horizontal asymptotes. Justify using limits.

   (d) List all points where $f(x)$ is discontinuous. Justify your answer using the definition of continuity.

Free Response No Calculator: Practice

$$f(x) = \begin{cases} x+1, & x \leq 1 \\ 3x-1, & x > 1 \end{cases}$$

2. Is $f(x)$ continuous at $x = 1$? Justify your answer

Free Response Calculator: Practice

3. Consider the function $f(x) = 2x^3$.

   (a) What is the average rate of change of f on the interval $[0.75, 1.25]$?

   (b) Find an equation for the line tangent to f at $x = 1$.