

Name:

Class:

Free Response No Calculator Test Corrections

1. Consider the function $f(x) = \frac{2x^2 - x^3}{x^3 - 3x^2 - 4x + 12}$
 - (a) Give the zeros of $f(x)$.
 - (b) Give the equation(s) of any vertical asymptotes. Then describe the behavior around the vertical asymptotes.
 - (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.

$$f(x) = \begin{cases} \sin(x), & x < 0 \\ x^2, & 0 \leq x < 1 \\ 2 - x, & 1 \leq x < 2 \\ x - 3, & x \geq 2 \end{cases}$$

2. Use the definition of continuity to prove whether $f(x)$ is continuous at the given point.

(a) Is $f(x)$ continuous at $x = 1$?

(b) Is $f(x)$ continuous at $x = 2$?

Free Response Calculator Test Corrections

3. Consider the function $f(x) = x^3$.
- (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 $x = 1$.