Mth 123 Test #1

FALL 1996

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Instructions. Show clearly how you arrive at your answers.

1. Compute: $\lim_{x\to 2} \frac{x^3-2x^2+2}{x^3+3} =$

2. Compute: $\lim_{x\to 2} \frac{x^2-4}{x^2+2x-8} =$

3. Compute: $\lim_{x\to 0} \frac{\sqrt{3+x}-\sqrt{3}}{x} =$

4. $\lim_{x\to\infty} \frac{2x^3-3x+4}{6x^3-6x^2+5x-2} =$

5. Find asymptotes and graph: $f(x) = \frac{2x+5}{x-3}$

6. $\lim_{x\to-\infty} \frac{3x^3+2x+5}{9x^2+4x-2} =$

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

8. Given:

$x =$	$f(x)$
4.000	-3.5
4.500	-35.1
4.900	-351.2
4.990	-3512.3
4.999	-35123.0

$x =$	$f(x)$
6.000	-3.5
5.500	-35.1
5.100	-351.2
5.010	-3512.3
5.001	-35123.0

determine:

   (a) $\lim_{x\to 5^-} f(x) =$

   (b) $\lim_{x\to 5^+} f(x) =$

   (c) Sketch a rough graph of $f(x)$.

9. Given:

$x =$	$f(x)$
-10.0	-1.5601
-100.0	-1.1311
-1,000.0	-1.0132
-10,000.0	-1.0012
-100,000.0	-1.0002

$x =$	$f(x)$
10.0	-0.4399
100.0	-0.8689
1,000.0	-0.9868
10,000.0	-0.9988
100,000.0	-0.9998

determine:

(a) $\lim_{x \to -\infty} f(x) =$

(b) $\lim_{x \to +\infty} f(x) =$

(c) Sketch a rough graph of $f(x)$.