

MTH 1125 Test #1 - (2 pm class)

FALL 2023

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Name _____

Instructions. Show CLEARLY how you arrive at your answers.

1. Compute: $\lim_{x \rightarrow 2} \frac{x^2+3x-8}{x^2+3x+5} =$

2. Compute: $\lim_{x \rightarrow 2} \frac{x^2-7x+10}{2x^2-3x-2} =$

3. Compute: $\lim_{x \rightarrow 2} \frac{x^2+2x-9}{x^2+x-6} =$

4. Compute: $\lim_{x \rightarrow -\infty} \frac{4x^8+3x-3}{4x^6+7x^5-5x} =$

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

6. Compute: $\lim_{x \rightarrow 9} \frac{\sqrt{x+7}-4}{x-9} =$

7.

$x =$	$f(x) =$	$x =$	$f(x) =$
1.5	10	2.5	-10
1.9	100	2.1	-100
1.99	1,000	2.01	-1,000
1.999	10,000	2.001	-10,000
1.9999	100,000	2.0001	-100,000

Based on the information in the table above, compute/do the following:

(a) $\lim_{x \rightarrow 2^-} f(x) =$

(b) $\lim_{x \rightarrow 2^+} f(x) =$

(c) Graph $f(x)$

8. Determine whether or not $f(x)$ is continuous at the point $x = 2$. (Justify Your Answer)

$$f(x) = \begin{cases} 3x - 3 & \text{for } x < 2 \\ 3 & \text{for } x = 2 \\ x^2 - 1 & \text{for } x > 2 \end{cases}$$