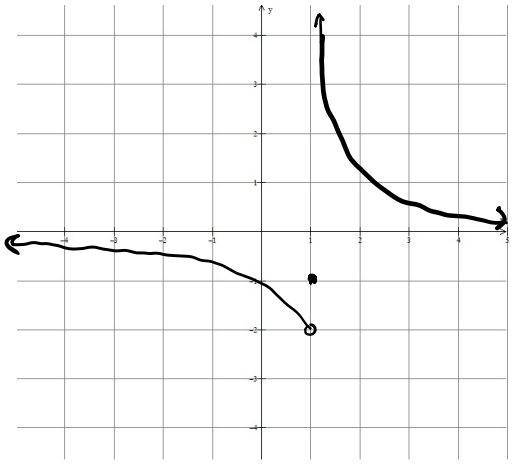
Name:_____ Date:_____

Calculus 12 LG 2-3 Quiz Ver A /26

1. Consider the following function $y = f(x)$. Find: (1/2 mark each)



a) $\lim_{x \to 1^-} f(x)$

b) $\lim_{x \to 1^+} f(x)$

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

d) f(1)

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

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

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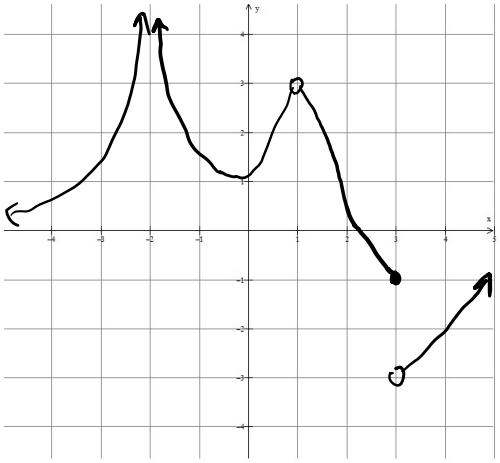
2. For what values of x does the limit exist in the following function? (2 marks)



3. Determine the following limits. (2 marks each)

a) $\lim_{x\to 5} \frac{x-5}{x^2-25}$

b) $\lim_{x\to +\infty} \frac{5x-4x^3}{2x^3+4x-3}$

c) $\lim_{x\to 2^-} \frac{x}{x^2+3x-10}$

d) $\lim_{x\to -\infty} \frac{7x-4}{\sqrt{2+3x^2}}$

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4. Determine the following limits. (2 marks each)

a) $\lim_{x\to 0} \frac{2sin3x}{x}$

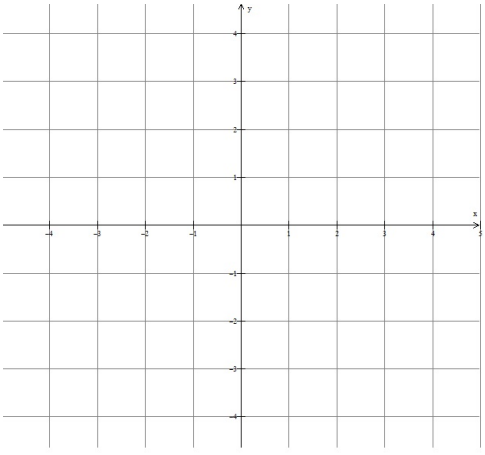
b) $\lim_{x\to 0} \frac{sin2x}{sin6x}$

5. Find the points of discontinuity. (2 marks each)

a) $f(x) = \frac{2}{x-3} + \frac{4}{x}$

b) $f(x) = \begin{cases} 5x-3, & x < 3 \\ 6-x, & x \geq 3 \end{cases}$

6. Sketch the graph of a function that is continuous everywhere but has a removable discontinuity at x=-3 and is also not continuous at x=2 but it continuous from the right. (2 marks)



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7. Prove that the function $f(x) = \frac{x-2}{2x^2-3x-2}$ is not continuous at x = 2. Is the discontinuity removable? (3 marks)

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