

Course
1A

Student ID
12345678

Test
QUIZ 1

Question	2	3	4
Points	4	3	0
	MAX: 6.5	MAX: 4.5	MAX: 4.5

Question	5	6a	6b
Points	0	1	8
	MAX: 3	MAX: 3.5	MAX: 10

Total
16
MAX: 32

Self Assessment [3 POINTS]

[a] What personal and/or study habits could you change to increase your likelihood of doing better on the next quiz ?

LEARN HOW TO USE THEOREMS PROPERLY (CHECK ALL DEFINITIONS + CONDITIONS)

DON'T SKIP DETAILS - WRITE OUT SOLUTIONS PROPERLY

STAY ON TOP OF HOMEWORK + ASK QUESTIONS ASAP

[b] Based on your work on the prerequisites review packet and your performance on this test, what prerequisite skills should you improve on ?

ADDING RATIONAL EXPRESSIONS USING LCD (NOT JUST

MULTIPLYING ALL DENOMINATORS), TRIG, GRAPHS, LOGS,

INEQUALITIES

$$[2] \lim_{x \rightarrow 1^+} (f(x) - 3) = \lim_{x \rightarrow 1^+} f(x) - \lim_{x \rightarrow 1^+} 3 = 4 - 3 = 1$$

$$\lim_{x \rightarrow 1^-} (f(x) - 3) = \lim_{x \rightarrow 1^-} f(x) - \lim_{x \rightarrow 1^-} 3 = 2 - 3 = -1$$

$\lim_{x \rightarrow 1} (f(x) - 3)$ DNE, so $\lim_{x \rightarrow 1} \cos(f(x) - 3)$ DNE

$$[3] 1 + \ln x = 0 \rightarrow \ln x = -1 \rightarrow x = e^{-1}$$

$\frac{\arctan x}{1 + \ln x}$ IS CONT. AT $x > 0$, $x \neq e^{-1}$

$$\begin{aligned}
 [4] \lim_{x \rightarrow -3} \frac{\frac{27}{x^2} - \frac{18}{x^2 + x}}{x + 3} &= \lim_{x \rightarrow -3} \frac{27(x^2 + x) - 18x^2}{x^2(x^2 + x)(x + 3)} \\
 &= \lim_{x \rightarrow -3} \frac{9x^2 + 27x}{x^2(x^2 + x)(x + 3)} \\
 &= \lim_{x \rightarrow -3} \frac{9x(x + 3)}{x^2(x^2 + x)(x + 3)} = \lim_{x \rightarrow -3} \frac{9}{x(x^2 + x)} \\
 &= \frac{9}{3(12)} = \frac{1}{4}
 \end{aligned}$$

$$\lim_{x \rightarrow -3} \sin^{-1} \frac{\frac{27}{x^2} - \frac{18}{x^2 + x}}{x + 3} = \sin^{-1} \frac{1}{4}$$

$$[5] f(-2) = \frac{-8}{3 - 4 - 4} = \frac{8}{5} \quad f(4) = \frac{16}{3 + 8 - 16} = -\frac{16}{5}$$

$$f(4) \leq 1 \leq f(-2)$$

IVT APPLIES

AQ IS CORRECT

$$[6][a] \lim_{x \rightarrow 1} \frac{2x^2 - 3x - 2}{2 + x - x^2} = \frac{2 - 3 - 2}{2 + 1 - 1} = \frac{-3}{2}$$

SINCE $\frac{2x^2 - 3x - 2}{2 + x - x^2}$ IS RATIONAL

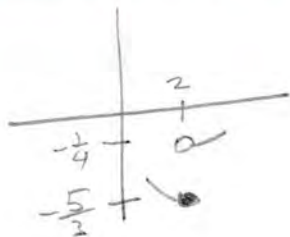
$$[b] \lim_{x \rightarrow 2^-} f(x) = \lim_{x \rightarrow 2^-} \frac{2x^2 - 3x - 2}{2 + x - x^2} = \lim_{x \rightarrow 2^-} \frac{(x-2)(2x+1)}{(x-2)(-x-1)} = \lim_{x \rightarrow 2^-} \frac{2x+1}{-x-1} = \frac{5}{-3}$$

$$\frac{8-6-2}{2+2-4} \rightarrow \frac{0}{0}$$

$$\lim_{x \rightarrow 2^+} \frac{\sqrt{4x+1} - \sqrt{x+7}}{4-2x} = \lim_{x \rightarrow 2^+} \frac{3x-6}{(4-2x)(\sqrt{4x+1} + \sqrt{x+7})}$$

$$= \lim_{x \rightarrow 2^+} \frac{3}{-2(\sqrt{4x+1} + \sqrt{x+7})} = \frac{3}{-2(3+3)} = -\frac{1}{4}$$

NOT CONT SINCE $\lim_{x \rightarrow 2} f(x)$ DNE



JUMP DISCONTINUITY