

Math 131 - Quiz 2 (IC)

September 1, 2021

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) Evaluate the limit analytically: $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x + 3} = \frac{3^2 - 9}{3 + 3} = \frac{0}{6} = \boxed{0}$

2. (1 point) Explain why direct substitution cannot be used to evaluate the following limit.

$$\lim_{x \rightarrow 1} \frac{5x - 5}{2 \ln x}$$

BECAUSE $\ln 1 = 0$, DIRECT SUBSTITUTION
WOULD GIVE A ZERO DENOMINATOR.

3. (2 points) Evaluate the limit analytically: $\lim_{x \rightarrow 4} \frac{x(x-2) - 8}{2x - 8}$ % More work.

$$\lim_{x \rightarrow 4} \frac{x^2 - 2x - 8}{2x - 8} = \lim_{x \rightarrow 4} \frac{(x-4)(x+2)}{2(x-4)} = \frac{6}{2} = \boxed{3}$$