

Name _____ Quiz 3

Note that there were multiple version which changed the order of the problems. Be sure to read the problem when checking your work, as the problems might not be in the same order.

Green marks denote mathematical grammar mistakes. The penalty was capped at 5%, or 0.5 points on this quiz. Note that after the first test the cap will increase to 10%.

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

$$\lim_{x \rightarrow 3^-} \frac{6x - 2x^2}{x - 3} = \lim_{x \rightarrow 3^-} \frac{2x(3 - x)}{x - 3} = \lim_{x \rightarrow 3^-} -2x = -2 \cdot 3 = -6$$

Partial credit was given for $-\infty$ or 6 if supporting work correctly shows how you got those incorrect answers. (the minor mistakes of treating it as an infinite limit or plugging in $x = -3$ respectively)

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{x + \cos(x)}{\sin(x)} = \frac{\frac{\pi}{2} + 0}{1} = \frac{\pi}{2}$$

Partial credit was given if you found $\frac{x + \cos(\frac{\pi}{2})}{\sin(\frac{\pi}{2})}$, but failed to or incorrectly computed the trig functions.

$$\lim_{x \rightarrow \infty} \frac{\sqrt{5x^6 + x^4} - 2x^2}{2x^3 + 1} = \frac{\sqrt{5}}{2}$$

Partial credit was given for $\frac{5}{2}$ or other algebra mistakes involving that root.

$$\lim_{x \rightarrow \infty} \frac{\sqrt{5x^6 + x^4} - 2x^3}{2x^3 + 1} = \frac{\sqrt{5} - 2}{2}$$

Partial credit was given for $\frac{5-2}{2} = \frac{3}{2}$ or other algebra mistakes involving that root so long as the work showed you made a simple algebra mistake and not a conceptual mistake. (Does not apply to calculus mistakes)