

Practice Quiz 3 WS

Directions for #1-7, Evaluate the limit if it exists

1) $\lim_{x \rightarrow 1} \frac{x-1}{x^3-1}$, label the discontinuity @ $x=1$

2) $\lim_{x \rightarrow 0} \frac{\sqrt{x+1} - 1}{x}$, label the discontinuity @ $x=0$

3) $\lim_{x \rightarrow 0} \frac{\sqrt{x+1} + 1}{x}$, label the discontinuity @ $x=0$

4) $\lim_{x \rightarrow 0} \frac{\sin 3x}{x}$, label the discontinuity @ $x=0$

5) $\lim_{x \rightarrow 1} \frac{\cos x}{(x-1)^2}$, label the discontinuity @ $x=1$

6) $\lim_{x \rightarrow 1} \frac{\sin x}{x-1}$, label the discontinuity @ $x=1$

7) Find the values of constants p and q so that the $\lim_{x \rightarrow 2} f(x)$ exists and is equal to $f(2)$.

$$f(x) = \begin{cases} px^2 - 3qx - 18, & x < 2 \\ 0, & x = 2 \\ 2px + 5q - 7, & x > 2 \end{cases}$$

8) Does the function, $g(x) = \frac{8x^3 - 1}{2x^2 + 5x - 3}$, have any discontinuities? If so, where are they located (x -values) and what type are they?