MATH 2554 **Calculus I** **Fall 2019**

Drill Handout Section 2.6 September 12, 2019 Name:_____

(1) Determine whether $f(x) = \begin{cases} \frac{\sqrt{x}-3}{x-9} & \text{if } x \neq 9 \\ \frac{1}{6} & \text{if } x = 9 \end{cases}$ is continuous at $x = 9$. Use the continuity checklist to justify your answer.

(2) Determine the intervals on which $g(x) = \frac{x^2-x}{x^2-1}$ is continuous.

(3) Determine a value of a constant a so that the function

$$h(x) = \begin{cases} x^2 + a & x < 1 \\ 2x + 3 & x \geq 1 \end{cases}$$

is continuous at $x = 1$. Use the continuity checklist to justify your answer.

(4) Determine the intervals on which $f(x) = \frac{1-\cos x}{\sin x}$ is continuous.

(5) Determine the intervals on which $g(x) = \sqrt{1 - e^x}$ is continuous.