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

Drill Handout Section 2.3 September 3, 2019 Name:_____

(1) Suppose

$$f(x) = \begin{cases} 3x + b & \text{if } x \leq 2 \\ \frac{x^2-4x+4}{x-2} & \text{if } x > 2 \end{cases}.$$

Determine a value of the constant b for which $\lim_{x\to 2} f(x)$ exists and state the value of the limit, if possible.

(2) (a) $\lim_{x\to -3} \pi$

(b) $\lim_{t\to\sqrt{2}} \sqrt[3]{t^2 - 10}$

(c) $\lim_{x\to 1} \dfrac{f(x)}{g(x) + h(x)}$, where $\lim_{x\to 1} f(x) = 5$, $\lim_{x\to 1} g(x) = \pi$, and $\lim_{x\to 1} h(x) = 5/2$.

(3) $\lim_{x\to 2^+} \dfrac{x - 2}{\sqrt{x - 2}}$

(4) $\lim_{x\to 3} \dfrac{\frac{1}{x} - \frac{1}{3}}{x - 3}$.