ACMAT161 Summer 2024
Professor Manguba-Glover
Homework 5 Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

1. $\lim_{t\to 2^-} \dfrac{t+2}{t-2}$
2. Find $\lim_{x\to 3} \dfrac{(x-1)(x-2)}{(x-3)}$
3. Find $\lim_{x\to 2} \dfrac{(x^2-4x+3)}{(x-2)^2}$
4. Find $\lim_{x\to 5} \dfrac{x-5}{x^2-25}$
5. Find $\lim_{x\to -5} \dfrac{x-5}{x^2-25}$
6. Find the vertical asymptotes of $f(x) = \frac{x^2-4x+3}{x^2-3x+2}$ then use limits to determine the function's behavior around them.
7. Sketch a graph of a function f that satisfies the following conditions:
   (a) $f(2) = 1$, $f(5) = -1$, $\lim_{x\to 4} g(x) = -\infty$, $\lim_{x\to 7^-} g(x) = \infty$, and $\lim_{x\to 7^+} g(x) = -\infty$