Math 131 - Worksheet
Fall 2021 - Week 2

Please think about these problems before we meet for Wednesday's class. Do not turn them in, but be prepared to discuss them.

1. Use the limit laws to find $\lim\limits_{x \to 3} \dfrac{5x^2 - 7x + 4}{2x}$. Show all work.

2. Explain how we use the substitution technique to evaluate limits. When does the technique fail to work?

3. Each limit below gives rise to the indeterminate form $0/0$, but each limit exits. Show how to evaluate each limit analytically.

   (a) $\lim\limits_{x \to 4} \dfrac{x - 4}{\sqrt{x} - 2}$

   (b) $\lim\limits_{x \to -1} \dfrac{x^2 + 3x + 2}{x^2 - 1}$

   (c) $\lim\limits_{x \to 1} \dfrac{x(x + 2) + 2(x + 1) - 7}{2x - 2}$

   (d) $\lim\limits_{x \to 0} \dfrac{\sin 5x}{7x}$

4. What does it mean for a limit to be one sided?

5. Can you use substitution to evaluate a one-sided limit?