

Math 114 Fall 2019
Calculus I HW 2
Due Wednesday, September 11

1. Stewart 1.5.16

2. Let

$$f(x) = \begin{cases} x + 3 & x > 2 \\ x^2 + 1 & x < 2 \end{cases}$$

Define a function that extends f and is continuous at all real numbers.

3. Let

$$g(x) = \begin{cases} x^2 - 5 & x > -1 \\ 4x & x < -1 \end{cases}$$

Define a function that extends g and is continuous at all real numbers.

4. Stewart 1.5.30

5. Stewart 1.4.34

6. Stewart 1.4.36

7. (★) Using the squeeze theorem, show that

$$\lim_{x \rightarrow -2} \frac{x + 2}{2 + \sin\left(\frac{1}{x+2}\right)} = 0.$$

8. Stewart 1.4.50

9. Stewart 1.4.52 (Hint: what trig identities do we know? Can we make one of them show up?)

10. Stewart 1.4.54