MATH 151 Homework 6

Due 2/11

Read Sections 2.5 and 2.7.

Do Section 2.4 Exercise 1 and 6
Do Section 2.5 Exercises 1, 4, 8, 41
Do Section 2.6 Exercise 1

Also, do the following exercises.

SF16. Determine all points x at which the function is discontinuous:

(a) $f(x) = \begin{cases} \frac{2}{\pi}x & \text{if } x < \frac{\pi}{2}, \\ \sin(x) & \text{if } \frac{\pi}{2} \leq x \leq 2\pi, \\ 2\pi & \text{if } x > 2\pi \end{cases}$

(b) $g(x) = |x|$

(c) $h(x) = \begin{cases} x & \text{if } x \text{ is a fraction}, \\ 0 & \text{if } x \text{ is not a fraction} \end{cases}$

SF17. Use the definition of the function $f(x) = \sin(x)$ to show that it is continuous at 0. Explain completely.

SF18. Find the equation of the line tangent to the graph $y = \frac{1}{x-1}$ at the point on the graph where $x = -1$.