CALCULUS, Fourth Edition, Hughes-Hallett, Gleason, McCallum, et al.

Chapter 5

Section	Suggested Problems
5.1	3, 5, 7, 15, 17, 23
5.2	1, 3, 7, 26, 27, 28
5.3	1, 4, 6, 9, 11, 16, 23, 37
5.4	3, 11, 12, 14-16, 19, 21-24, 27, 34, 35
Review	2, 18-21, 24, 44, 47

Important Remark. In this class we will make a (big) difference between exact and approximate values of real numbers. For example, in this class it is wrong to write $\pi = 3.14159$. Instead, one should write $\pi \approx 3.14159$. The book is not careful to make this distinction. For example, the statements $\sin(\pi/12) = 0.259$ and $\cos(\pi/5) = 0.809$ on page 35 are wrong. It can be proved that

$$\sin(\pi/12) = \frac{-1 + \sqrt{3}}{2\sqrt{2}} \quad \text{and} \quad \cos(\pi/5) = \frac{1}{4}\left(1 + \sqrt{5}\right).$$

I will post a proof on my website.

Learn few more functions:

- Explore the functions abs, sign, floor, ceiling on your calculator. Notice that your calculator might not give you accurate graphs of these functions. Explore particular values of these functions and sketch by hand accurate graphs.

- Just to illustrate how rich is the world of functions explore (for example: find domain and range and sketch accurate graphs by hand) the following:

  $x \mapsto \text{ceiling}(x) - \text{floor}(x)$

  $x \mapsto x - \text{floor}(x)$

  $x \mapsto \text{floor}\left(\frac{1}{x}\right)$

  $x \mapsto \dfrac{1}{\text{floor}\left(\frac{1}{x}\right)}$

  $x \mapsto \cos(\pi \, \text{floor}(x))$