

*Math 112*  
*Jonny Comes*  
*Fall 2005*  
*Assignment #2*  
*Due Wednesday Oct. 5*

**From the Textbook:**

- Section 6.3: 26, 32, 34, 38, 48, 50, 58.
- Section 6.4: 4, 16, 28, 30

**Additional Exercises:** (Be sure to justify all your answers)

1. Suppose that  $\sin t = 3/5$  and  $\tan t < 0$ . What is the exact value of  $\cos t$  ?
2. Is it possible for  $\sin \theta = 5/13$  and  $\tan \theta = -5/12$  ?
3. We know that  $\sin^2(t) + \cos^2(t) = 1$  for any real number  $t$ . What is the expression  $\sin^2(-t) + \cos^2(-t)$  equal to?
4. Later on in the term we will show  $\sin(\pi/8) = \frac{\sqrt{2-\sqrt{2}}}{2}$ . Use this fact to find  $\cos(\pi/8)$ .
5. A function  $f$  is called even if  $f(-t) = f(t)$  for all  $t$ .  $f$  is called odd if  $f(-t) = -f(t)$  for all  $t$ .
  - (a) Is  $h(t) = \sin(t)$  odd, even, or neither?
  - (b) Is  $k(t) = \cos(t)$  odd, even, or neither?
  - (c) Is  $g(t) = \tan(t)$  odd, even, or neither?
  - (d) Is  $f(t) = \tan^2(t) \cos(t) + t \sin(t)$  odd, even, or neither?
6. Is it true that the domain of the function  $f$  whose rule is  $f(t) = \tan(t)$  is all real numbers?
7. Is the point  $(\pi/3, 2)$  on the graph of the function  $h$  whose rule is  $h(t) = (\sin(t) + \tan(t) \cos^2(t))^2$ ?
8.
  - (a) Is it true that  $\tan \theta$  is always less than 1?
  - (b) Is it true that  $\tan \theta$  is always less than 100?
  - (c) Is there any numbers  $M$  such that  $\tan \theta$  is always less than  $M$  ?