

*Math 112*  
*Jonny Comes*  
*Fall 2005*  
*Assignment #1*  
*Due Friday Sept. 30*

**From the Textbook:**

- Section 6.1: 6-42 even, 46, 50, 74
- Section 6.2: 2-8 even, 22-32 even, 38-42 even.

**Additional Exercises:**

1. Show it is NOT true in general that  $\sin(a) + \sin(b) = \sin(a + b)$  by finding two numbers  $a$  and  $b$  with the property

$$\sin(a) + \sin(b) \neq \sin(a + b).$$

2. Is it true that  $\cos(a - b) = \cos(a) - \cos(b)$ ? Justify your answer.
3. Is it true that  $\tan(a) = \tan(b)$  implies  $a = b$ ? Justify your answer.
4. Are there any angles  $\theta$  and  $\phi$  such that  $\sin(\theta) = \sin(\phi)$  but  $\theta$  and  $\phi$  are not coterminal? Justify your answer.
5. The following table shows when  $\sin(\theta)$  is positive and when it is negative depending on the value of  $\theta$ .

$\pi/2 < \theta < \pi$ $\sin(\theta) > 0$	$0 < \theta < \pi/2$ $\sin(\theta) > 0$
$\pi < \theta < 3\pi/2$ $\sin(\theta) < 0$	$3\pi/2 < \theta < 2\pi$ $\sin(\theta) < 0$

Make a table like this one for both cosine and tangent.

6. An ant jumps onto the very end of the second hand of a clock and stays there until he has travelled exactly 20 feet, then he jumps off. If the second hand is 2 feet long, how long did the ant stay on the end of the second hand?