

**Math 32, Spring 2010, Section 101**  
**Worksheet 11**

Work through the following problems in groups of about four. Take turns writing; everyone should get a chance to write for some of the problems. It's more important to understand the problems than to do all of them.

1. Graph  $y = 3 \sin(\frac{1}{2}x + \pi/6)$ . Indicate the period, amplitude, and label the  $x$ -intercepts for one period. Show me your graph before moving on to #2.
  
2. Evaluate the following if they are defined. If they are undefined, say why.
  - (a)  $\cos^{-1}(-1)$
  - (b)  $\cos(\arccos(\pi))$
  - (c)  $\tan(\tan^{-1}(4))$
  - (d)  $\arccos(\cos(3\pi))$
  
3. Show that  $\cot \theta = \frac{1 + \cos 2\theta}{\sin 2\theta}$  is an identity. Hint: use the double angle identities  $\cos 2\theta = \cos^2 \theta - \sin^2 \theta$  and  $\sin 2\theta = 2 \sin \theta \cos \theta$ .
  
4. Find all solutions to the following equations
  - (a)  $\sin x = \frac{1}{2}$
  - (b)  $2 \sin^2 x - 3 \sin x + 1 = 0$
  
5. Is it true that  $\cos(x) \cdot \cos^{-1}(x) = 1$  is an identity? Why, or why not?