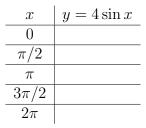
## Math 06, Homework 11 on the unit circle, graphing due Tue, Nov 26 at the start of class.

Write all your answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first eight questions are 1 point each. Make sure your answers match the solutions on page 2.

- (1) Give the exact coordinates of the point P(x, y) on the unit circle corresponding to  $-225^{\circ}$ .
- (2) Give the exact coordinates of the point P(x, y) on the unit circle corresponding to  $2\pi/3$ .
- (3) For the point  $P(-\sqrt{3}/2, -1/2)$  on the unit circle, give the sine, cosine and the tangent of the angle  $\theta$  that corresponds to *P*.
- (4) Determine  $\sin \theta$ ,  $\cos \theta$  and  $\tan \theta$  for  $\theta = \pi/2$ .
- (5) Find  $\tan \frac{11\pi}{12}$ , rounded to the nearest ten-thousandth.
- (6) Find all values of  $\theta$ , where  $0 \le \theta \le 2\pi$ , that make  $\sin \theta = -1/2$ .
- (7) Find all values of  $\theta$ , where  $0 \le \theta \le 2\pi$ , that make  $\sin \theta = 0$ .
- (8) Complete this table of values for  $y = 4 \sin x$



These next five questions are 5 points each. Show clearly all your working out and reasoning.

- (11) Give the exact coordinates of the point P(x, y) on the unit circle corresponding to  $150^{\circ}$ .
- (12) Give the exact coordinates of the point Q(x, y) on the unit circle corresponding to  $3\pi/2$ .
- (13) For the point R(0, -1) on the unit circle, give the sine, cosine and the tangent of the angle  $\theta$  that corresponds to R.

- (14) Find all values of  $\theta$ , where  $0 \le \theta \le 2\pi$ , that make  $\cos \theta = 0$ .
- (15) Complete this table of values for  $y = -\cos x$

x	$y = -\cos x$
0	
$\pi/2$	
$\pi$	
$3\pi/2$	
$2\pi$	

Answers to questions (1)-(8):

- (1)  $P(-\sqrt{2}/2,\sqrt{2}/2)$
- (2)  $Q(-1/2,\sqrt{3}/2)$
- (3)  $\cos \theta = x = -\sqrt{3}/2$ ,  $\sin \theta = y = -1/2$ ,  $\tan \theta = y/x = \sqrt{3}/3$
- (4)  $\sin \pi/2 = 1$ ,  $\cos \pi/2 = 0$ ,  $\tan \pi/2$  is undefined
- (5)  $\tan 11\pi/12 = -0.2679$  rounded to nearest ten-thousandth (4 places)
- (6)  $\theta = 7\pi/6$  or  $11\pi/6$
- (7)  $\sin \theta = 0$  for  $\theta = 0$ ,  $\pi$  and  $2\pi$

x	$y = 4\sin x$
0	0
$\pi/2$	4
$\pi$	0
$3\pi/2$	-4
$2\pi$	0

