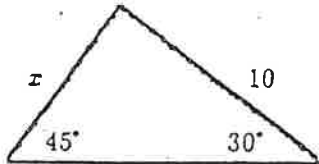
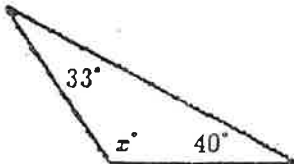


# Review for Placement Test to Bypass

## Math 1302—Trigonometry

Department of Mathematics and Statistics  
University of Houston-Downtown

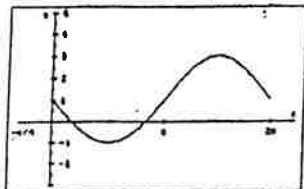
- Find the other five trigonometric functions of  $\theta$  using the given information.  
 $\tan \theta = \frac{5}{12}$ ;  $\sin \theta > 0$
- How far are you from the base of a tree 100 ft. tall if the angle of elevation to the top of the tree is  $30^\circ$ ?
- Graph exactly one period of each of the following functions.  
A.  $y = 2 \sin x + 1$       B.  $y = \tan x$       C.  $y = \cos 2x - 2$
- Prove the following identities by converting one side into the other.  
A.  $\sec x + \tan x = \frac{\csc x + 1}{\csc x \cos x}$       B.  $2 - \sin^2 \theta = 1 + \cos^2 \theta$   
C.  $\frac{1}{1 + \cos y} + \frac{1}{1 - \cos y} = 2 \csc^2 y$
- Find the value of each of the following expressions.  
A.  $\arcsin \frac{1}{2}$       B.  $\cos^{-1} \frac{\sqrt{2}}{2}$       C.  $\cos^2 15^\circ + \sin^2 15^\circ$   
D.  $\csc 60^\circ$       E.  $\tan [\sec^{-1}(-3)]$       F.  $\cot \frac{\pi}{4}$
- Solve the following equations for all  $x$  such that  $0 \leq x < 2\pi$ .  
A.  $2 \cos x \sin x = \sin x$       B.  $\sec^2 x - \sec x - 2 = 0$   
C.  $\cos^2 x = \frac{1}{2}$
- Solve the following triangles for the unknown quantity.  
A.   
B. 
- For the polar equation  $r = 2 - 3 \sin \theta$ , find the missing coordinate of the following points so that the resulting point will be in the graph of this equation.  
A.  $(?, \frac{5\pi}{4})$       B.  $(2, ?)$       C.  $(?, \frac{3\pi}{2})$
- Change the polar coordinates  $(-3, \frac{5\pi}{4})$  to rectangular coordinates.

ANSWERS FOR SAMPLE PLACEMENT TEST TO BYPASS MATH 1302

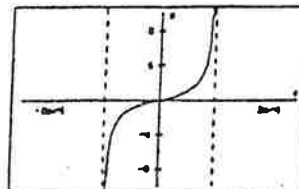
1.  $\sin \theta = \frac{5}{13}$ ,  $\csc \theta = \frac{13}{5}$ ,  $\cos \theta = \frac{12}{13}$ ,  $\sec \theta = \frac{13}{12}$ ,  $\tan \theta = \frac{12}{13}$ ,  $\cot \theta = \frac{13}{12}$

2. distance =  $100\sqrt{3}$

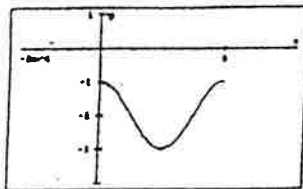
3. A.



B.



C.



5. A.  $\text{Arcsin } \frac{1}{2} = 30^\circ$  or  $\frac{\pi}{6}$       B.  $\text{Cos}^{-1} \frac{\sqrt{2}}{2} = 45^\circ$  or  $\frac{\pi}{4}$       C.  $\cos^2 15^\circ + \sin^2 15^\circ = 1$   
 D.  $\csc 60^\circ = \frac{2\sqrt{3}}{3}$       E.  $\tan [\sec^{-1}(-3)] = -2\sqrt{2}$       F.  $\cot \frac{\pi}{4} = 1$

6. A.  $x = 0^\circ, 60^\circ, 180^\circ, 300^\circ$  or  $x = 0, \frac{\pi}{3}, \pi, \frac{5\pi}{3}$       B.  $x = 60^\circ, 180^\circ, 300^\circ$  or  $x = \frac{\pi}{3}, \pi, \frac{5\pi}{3}$   
 C.  $x = 45^\circ, 135^\circ, 225^\circ, 315^\circ$  or  $x = \frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

7. A.  $x = 5\sqrt{6}$       B.  $x^\circ = 107^\circ$

8. A.  $\frac{4-3\sqrt{2}}{2}$       B.  $0, \pm\pi, \pm 2\pi, \pm 3\pi, \dots$       C. 5

9.  $(\frac{3\sqrt{2}}{2}, \frac{3\sqrt{2}}{2})$