MATH 114 **Name:**

12. 1. 2006

TEST 3

Please circle the name of your TA:

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Show all your work in order to receive credit. A correct answer without any work will receive 0 credit. Please write your answers neatly. You are NOT allowed to use calculators. Good luck!

P1	
P2	
P3	
P4	
P5	
TOTAL	

1. If $\tan x = \frac{5}{12}$, $\pi \leq x \leq \frac{3\pi}{2}$, $\sin(-y) = \frac{3}{5}$ and $\frac{3\pi}{2} \leq y \leq 2\pi$ determine the following

   a) $\cos(x-y) =$

   $\cos(x-y)$=_____

   b) $\tan(x-y) =$

   $\tan(x-y)$=_____

   c) Bonus 1 pt: The angle $\theta = x - y$ is in what quadrant?

2. In order to measure the height of a building two measurements are made. At one spot the angle of elevation to the top of the building is 45°. At another spot 100 ft closer to the building the angle of elevation to the top of the building is 60°. Determine the height of the building. Rationalize the denominator in your answer.

$h =$_____

3. Determine the following:

a) $\sin(22.5°) =$

b) $\cos(\arctan(-2)) =$

4. Find **all** the solutions of the following equation

$$\frac{1+\sin x}{\cos x}+\frac{\cos x}{1+\sin x}=-2$$

$x =$ _____

5. True or false?

i)	π radians $= 180°$	True	False
ii)	$\dfrac{1}{5\cos\theta} = 5\sec\theta$	True	False
iii)	If $\sin\theta = \dfrac{1}{2}$, then $\cos\theta = \dfrac{\sqrt{3}}{2}$	True	False
iv)	$\sec x = \cos^{-1} x$	True	False
v)	$\sin(3.1415) = 0$	True	False
vi)	The period of $y = \tan\left(2x - \dfrac{\pi}{4}\right)$ is π	True	False
vii)	In ΔABC we have $a = 2$ in, $b = 6$ in and $\gamma = 30°$.Then $A = 3$ in^2	True	False
viii)	$\sin^{-1}\left(\sin\left(\dfrac{11\pi}{4}\right)\right) = \dfrac{11\pi}{4}$	True	False