City college of Technology.

Test 3. MAT 1275. Prof Duvvuri

Show all the working neatly in the booklet.
Guess work will not be given credit.

1. Prove the identity: $\frac{1}{\sin x} - \frac{1}{\operatorname{Cosec} x} = \cos x \cdot \cot x$.

2. Find the exact values of

a) $\sin 315^\circ$. (b) $\cos(-120)^\circ$.

c) $\tan \frac{3\pi}{4}$. (d) $\sin(-300^\circ)$.

You can leave answers in Radical form.

3. $\sin\theta = \frac{3}{5}$ $\cos\theta$ is negative,
Find the other trig Ratios of θ.

4. $\tan\theta = \frac{-12}{5}$; θ is in the II Quadrant.
Find $\sin\theta$ and $\cos\theta$.

5. A Point $P(8, -15)$ is on the terminal Side of θ.
Determine the 6 trig functions of θ.

6. Prove the Identities:

a) $(\sin x + \cos x)^2 = 1 + 2\sin x \cos x$.

b) $\sec x - \cos x = \sin x \cdot \tan x$.

(7) Find the center and radius of the circle given by $x^2 + y^2 + 8x - 2y - 8 = 0$, find 4 points and sketch the graph.

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