Quiz 3, Math 1060–003
September 13, 2013

> You have 10 minutes to complete this quiz. No calculators, notes, books, etc. are allowed. Show your work, and place your final answer on the line provided for each question. You do not need to simplify square roots or rationalize denominators.

Name: Answer Key uNID: ____________

1. (1 point) State one of the reciprocal identities.

$\cos\theta = \frac{1}{\sec\theta}$, $\sin\theta = \frac{1}{\csc\theta}$, $\tan\theta = \frac{1}{\cot\theta}$

$\sec\theta = \frac{1}{\cos\theta}$, $\csc\theta = \frac{1}{\sin\theta}$, $\cot\theta = \frac{1}{\tan\theta}$

1. ____________

2. (1 point) State one of the quotient identities.

$\tan\theta = \frac{\sin\theta}{\cos\theta}$, $\cot\theta = \frac{\cos\theta}{\sin\theta}$

2. ____________

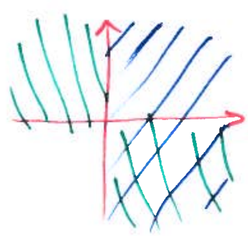
3. (1 point) State one of the Pythagorean identities.

$\sin^2\theta + \cos^2\theta = 1$ $\quad \tan^2\theta + 1 = \sec^2\theta$

$1 + \cot^2\theta = \csc^2\theta$

3. ____________

4. (1 point) Assuming that $\cos\theta > 0$ and $\tan\theta < 0$, find the quadrant in which θ resides.



$\cos\theta > 0$
$\tan\theta < 0$

(Recall: $\cos\theta = x/r$
$\quad + \tan\theta = y/x$)

4. IV

5. (1 point) Assuming that θ is in quadrant IV and $\cos\theta = 1/5$, find $\sin\theta$.

$\cos^2\theta + \sin^2\theta = 1$

$\left(\frac{1}{5}\right)^2 + \sin^2\theta = 1$

$\frac{1}{25} + \sin^2\theta = 1$

$\sin^2\theta = \frac{24}{25}$

$\sin\theta = \pm\sqrt{\frac{24}{25}}$

Quad IV $\Rightarrow$ $\sin\theta = -\sqrt{\frac{24}{25}} \left(= -\frac{2\sqrt{6}}{5}\right)$

5. $-\sqrt{\frac{24}{25}}$

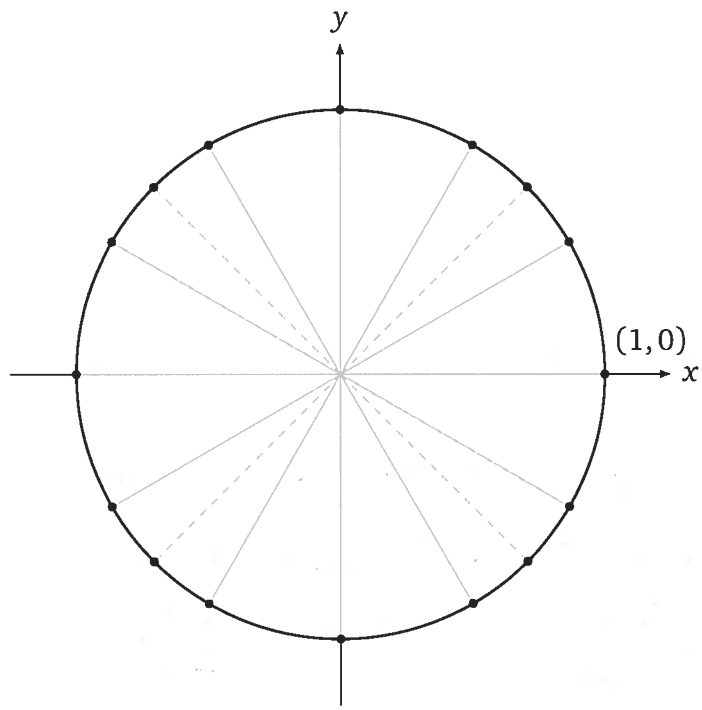


Figure 1: This will be the blank unit circle given to you on the first exam. It WILL NOT be graded for credit on this quiz or on the upcoming exam—it is given to you as a reference. The angles are the same as on the previous hand out (e.g. in the first quadrant, moving counter-clockwise from $(1,0)$, the angles are $0, \pi/6, \pi/4, \pi/3$, and $\pi/2$ rads). For the upcoming exam, you must be familiar with the angles depicted on this figure, and the coordinates of the corresponding points on the unit circle. This figure, and a filled-in version, are on the course website.