Math 51 (9:30am – 10:20am)
Quiz 2
Fri Apr 17, 2009

KEY

SCORE: ___ / 20 POINTS

What month is your birthday ?   __ __
What are the first 2 digits of your address ?   __ __
What are the last 2 digits of your zip code ?   __ __
What are the last 2 digits of your social security number ?   __
[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER, USE YOUR STUDENT ID NUMBER]

NO CALCULATORS ALLOWED

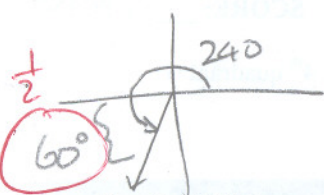Fill in the trigonometric function values.   **SCORE: ___ / 3 POINTS**

θ	$\sin\theta$	$\cos\theta$	$\text{Tan}\,\theta$
0°	0	1	0
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
90°	1	0	UNDEF

$-\frac{1}{2}$ FOR EACH ERROR
MINIMUM: 0 POINTS

Find $\cos 600°$. **YOU MUST SHOW PROPER WORK.**   **SCORE: ___ / 3 POINTS**

$600°$ IS COTERMINAL WITH $600° - 360° = 240°$ IN Q_3, SO $\cos 600° < 0$

$\cos 600° = -\frac{1}{2}$

(diagram showing 240° and 60° reference angle)

Use an identity **(NOT x, y and r)** to find $\sec\theta$ if $\tan\theta = \frac{\sqrt{7}}{3}$ and θ is in the third quadrant.   **SCORE: ___ / 3 POINTS**
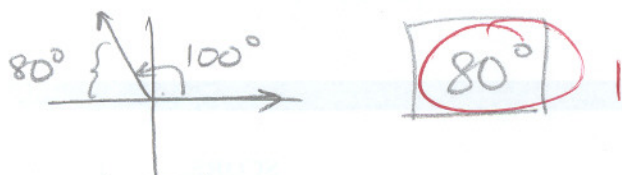
$\sec^2\theta = \tan^2\theta + 1$
$= \frac{7}{9} + 1$
$= \frac{16}{9}$
$\sec\theta = \pm\frac{4}{3}$ SINCE θ IS IN Q_3, $\sec\theta < 0$, SO $\sec\theta = -\frac{4}{3}$

Find the reference angle for $-620°$. **YOU MUST SHOW PROPER WORK.**   **SCORE: ___ / 2 POINTS**

$-620°$ IS COTERMINAL WITH $-620° + 360° \times 2 = 100°$ IN Q_2

(diagram showing 80° and 100°) $80°$

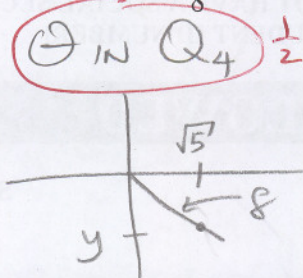Write $\sec(\alpha + 20°)$ in terms of its cofunction.   **SCORE: ___ / 1 POINT**

$\csc(90° - (\alpha + 20°)) = \csc(70° - \alpha)$

QUESTIONS ON OTHER SIDE

Use any method to find $\csc\theta$ if $\cos\theta = \dfrac{\sqrt{5}}{8}$ and $\tan\theta < 0$. **YOU MUST SHOW PROPER WORK.** SCORE: ___ / 3 POINTS
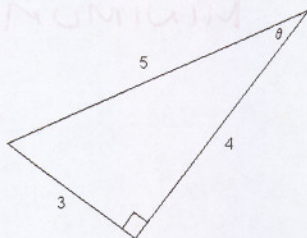
$x = \sqrt{5}$

$r = 8$

$\frac{1}{2}$

θ IN Q_4 $\frac{1}{2}$

$\frac{1}{2}$

$\sqrt{5}$

y — 8

$8^2 = \sqrt{5}^{\,2} + y^2$

$59 = y^2$

$y = \pm\sqrt{59}$

$y < 0$ SO $y = -\sqrt{59}$

$\csc\theta = \dfrac{r}{y}$

$= \dfrac{8}{-\sqrt{59}}$

$= \boxed{\dfrac{-8\sqrt{59}}{59}}$

Multiple Choice – You do NOT need to show work

Find $\sec\theta$ in the figure. SCORE: ___ / 1 POINT

[a] $\dfrac{3}{4}$ [b] $\dfrac{3}{5}$ [c] $\dfrac{4}{3}$ [d] $\dfrac{4}{5}$ [e] $\dfrac{5}{3}$ [f] $\dfrac{5}{4}$

LETTER OF CORRECT ANSWER: F

Identify the quadrant of an angle θ if $\csc\theta < 0$ and $\tan\theta < 0$. SCORE: ___ / 1 POINT

[a] 1st quadrant [b] 2nd quadrant [c] 3rd quadrant [d] 4th quadrant

LETTER OF CORRECT ANSWER: D

Consider the following statements: SCORE: ___ / 1 POINTS

[1] $\sec\alpha = 0.6$

[2] $\tan\theta = 110.47$

Which of the above statements is/are possible ?

[a]   [1] and [2] are both possible
[b]   only [1] is possible
[c]   only [2] is possible
[d]   neither statement is possible

LETTER OF CORRECT ANSWER: C

$\sec(-450°) =$ SCORE: ___ / 2 POINTS

[a]   undefined [b] -1 [c]   1 [d]   0

LETTER OF CORRECT ANSWER: A