MATH 253 NAME: SOLUTIONS

QUIZ 4

SEPTEMBER 30, 2009 SHOW YOUR WORK FOR FULL CREDIT.

1. Solve the exponential equation $8^x = 4$. Give the exact answer in simplified form.

$8^x = 4$ $\quad \{ \quad 2^{3x} = 2^2 \quad \{ \quad \boxed{x = 2/3}$

$(2^3)^x = 2^2$ $\quad\quad 3x = 2$

2. Solve the logarithmic equation $\ln\sqrt{x+2} = 1$ algebraically. Do not use a calculator, give the exact answer.

$\frac{1}{2}\ln(x+2) = 1$ $\quad \{ \quad x+2 = e^2$

$\ln(x+2) = 2$ $\quad\quad \boxed{x = e^2 - 2}$

3. Sketch each angle in standard position and find the corresponding radian or degree measure, as is appropriate. Label your graph completely.

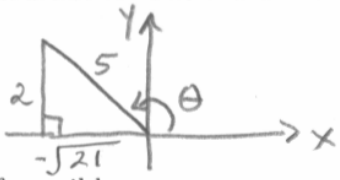
(a) $-120°$

$-120°$ OR $\boxed{-\frac{2\pi}{3}}$

(b) $\frac{7\pi}{4}$

$\frac{7\pi}{4}$ OR $\boxed{315°}$

4. Sketch a right triangle corresponding to the trigonometric function $\sin\theta = \frac{2}{5}$ where θ is an angle in Quadrant II. Then find the value of $\sec\theta$.



$\boxed{\sec\theta = \frac{1}{\cos\theta} = -\frac{5}{\sqrt{21}}}$

5. Evaluate, if possible.

(a) $\tan 0 = 0$

(b) $\sin\frac{3\pi}{2} = -1$

(c) $\cos\frac{3\pi}{2} = 0$

(d) $\csc\pi = \frac{1}{\sin\pi} = \frac{1}{0}$ IS NOT DEFINED.