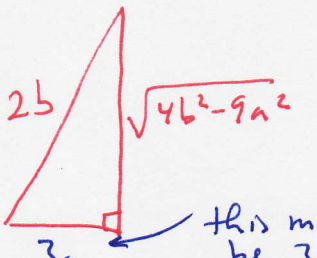
Trig quiz. 11.18.09 Name KEY

For probs 1 – 5 give the exact value:

1. $\sin(\frac{-17\pi}{4}) =$ $\frac{-\sqrt{2}}{2}$

2. $\cos(\sin^{-1}(\frac{\sqrt{4b^2-9a^2}}{2b})) =$ $\frac{3a}{2b}$



for prob 3 assume the angles are such that $0 \le \vartheta \le \frac{\pi}{2}$

3. $\sin^{-1}(\frac{-\sqrt{3}}{2}) =$ $-60°$

Prove these identities:

4. $\frac{1}{\tan\beta} + \tan\beta = \frac{\sec^2\beta}{\tan\beta}$

$= \frac{\tan^2\beta + 1}{\tan\beta}$

$= \tan\beta + \frac{1}{\tan\beta}$

□

Solve the equation over the specified intervals:

$0 \le x \le 2\pi$

5. $(\cos(x)+1)^2 = \sin(x)^2$ ← may introduce an extraneous root

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

$= 1 - \cos^2 x$

$2\cos^2 x + 2\cos x = 0$

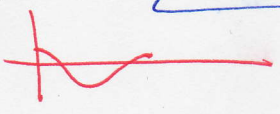
$\cos x(\cos x + 1) = 0$

so, $\cos x = 0$ or $\cos x + 1 = 0$

$90, 270°$ $\cos x = -1$

$x = 180$

omit, doesn't work in original equation.



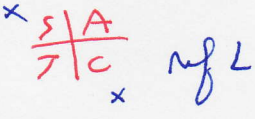
$0 \le x \le 2\pi$

6. $\sin(x) = -\cos(x)$

$\frac{\sin x}{\cos x} \quad \frac{-\cos x}{\cos x}$

$\tan x = -1$

$x = 135, 315$



ref $L = 45°$