Name: _____ Period: _____

Ch. 5 Test (Analytic Trigonometry) [72 pts] **Show all work.** **Practice Test (3)**

Establish the identity. [5 pts]

1) $\csc\theta - \cot\theta = \frac{\sin\theta}{1+\cos\theta}$

Establish the identity. [7 pts]

2) $\frac{1-cot^2\theta}{1+cot^2\theta} + 2cos^2\theta = 1$

Solve each equation for θ on the interval $[0, 2\pi]$. [7 points each]

3) $\boldsymbol{sec^2\theta = 3sec\,\theta + 4}$

4) $\boldsymbol{3cot^2(2\theta) = 3}$

5) Draw a reference triangle given the following: [5 pts]

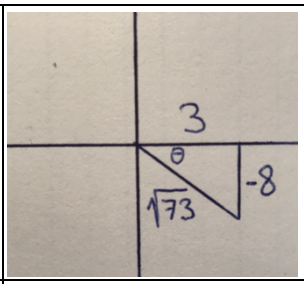
$$\sin\theta = -\frac{8}{12} \quad \tan\theta < 0$$

6) Draw a reference triangle given the following: [5 pts]

$$tan^{-1}\left(-\frac{2}{7}\right)$$

7) Find the exact value of the expression $sin\left(sin^{-1}\left(\frac{4}{5}\right) + cos^{-1}\left(-\frac{12}{13}\right)\right)$. **[8 pts]**

Use the reference triangle to the right on problems 8 and 9. [7 pts each]



8) $sec(2\theta)$

9) $tan(2\theta)$

10) Use a half-angle formula to find the exact value of the expression. **[7 pts]**

$$cos\left(\frac{7\pi}{12}\right)$$

11) Use a half-angle formula to find the exact value of the expression. **[7 pts]**

$$cot\left(\frac{13\pi}{12}\right)$$