

Name \_\_\_\_\_ Date \_\_\_\_\_

Pre-Calculus 1

**Unit 4 Test Review #2 – Solving Trigonometric Equations**

1. Solve each equation on the interval  $0 \leq \theta < 2\pi$ . Your answers should be exact values!

a.  $3(\tan \theta - 2) = 2 \tan \theta - 7$

b.  $2 \sin \theta - \sqrt{3} = \sin \theta$

c.  $3 \tan^2 \theta - 1 = 0$

d.  $4(\cot \theta + 1) = 2(\cot \theta + 2)$

2. Find all possible radian solutions to each of the following. Your answers should be exact values.

a.  $3 \csc \theta + 5 = 9 + \csc \theta$

b.  $4 \cos^2 \theta - 1 = 0$

3. Solve each equation on the interval  $0 \leq \theta < 360^\circ$ .

a.  $4\sin^2 \theta + 2\sin \theta = 0$

b.  $\sqrt{3} \cot \theta \tan \theta + \tan \theta = 0$

c.  $2\sin^2 \theta - \tan \theta \cot \theta = 0$

d.  $2\cos^2 \theta = 1 - \cos \theta$

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

f.  $3\cos 2\theta - 4\cos^2 \theta + 2 = 0$

g.  $\sin 2\theta + 2\sin \theta = 0$

h.  $\sin^2 \theta + 2 - \cos^2 \theta = 3\sin \theta$

4. Use your calculator for the final step in solving the following equation on the interval  $0 \leq \theta < 360^\circ$ :  
 $4 \cos \theta = -1$ .

5. Find all degree solutions:  $\sin(4A + 10^\circ) = -\frac{\sqrt{3}}{2}$

6. Use the quadratic formula to find all solutions in the interval  $0^\circ \leq \theta < 360^\circ$  to the nearest tenth of a degree.

a.  $3 \sin^2 \theta - 7 \sin \theta = 3$

b.  $2 \tan \theta (\tan \theta + 1) = 3$

7. Given that  $\theta$  is in radians, find all possible solutions to  $-3 \sec \theta + 8 = -2$