

Name _____ Date _____

Pre-Calculus 1

Unit 4 Test Review – Solving Trigonometric Equations

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

a. $2(\tan \theta + 3) = 5 + \tan \theta$

b. $(\sqrt{2} \sin \theta - 1)(\cos \theta + 1) = 0$

c. $2 \sin^2 \theta - 1 = 0$

d. $2 + \sqrt{3} \sec \theta = 0$

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

a. $2 \sin \theta - 2 = -2 + \sin \theta$

b. $5 \cos \theta - 2 = \cos \theta + 6$

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

a. $\sec \theta \sin \theta - \sin \theta = 0$

b. $\tan^2 \theta + \sqrt{3} \tan \theta = 0$

c. $2\sin^2 \theta - \cos \theta - 1 = 0$

d. $2\sin^2 \theta + 11\sin \theta = -5$

e. $4\cos^2 \theta + 4\sin \theta - 5 = 0$

f. $\cos \theta - \cos 2\theta = 0$

g. $\sin 2\theta - \cos \theta = 0$

h. $2\sin \theta + \cot \theta - \csc \theta = 0$

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

$$\sin \theta = -\frac{2}{7}.$$

5. Find all degree solutions: $\cos(2A - 50^\circ) = \frac{\sqrt{3}}{2}$

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. $2 \cos^2 \theta + 2 \cos \theta - 1 = 0$

b. $\sin^2 \theta - \sin \theta - 1 = 0$

7. Given that θ is in radians, find all possible solutions to $2 \csc \theta - 5 = -2$

