College Algebra **Name:** Nomani

Chapter 6 LT 1-2 Review **Date:** _____ **Period:** _____

Solve each equation over the interval $[0°, 360°)$. If necessary, round answers to the nearest hundredths.

1.) $2\cos x + \sqrt{3} = 0$

$2\cos x = -\sqrt{3}$

$\cos x = -\frac{\sqrt{3}}{2}$

RA: 30°

$\boxed{x = 150°, 210°}$

2.) $9\sin^2 x - 6\sin x + 1 = 0$

9
-3 -3
-6

$(3\sin x - 1)^2 = 0$

$3\sin x - 1 = 0$

$3\sin x = 1$

$\sin x = 1/3$

RA: 19.47°

$\boxed{x = 19.47°, 160.53°}$

3.) $6\cos^2 x + 5\cos x + 1 = 0$

6
3 2
5

$(2\cos x + 1)(3\cos x + 1) = 0$

$\cos x = -1/2$ $\cos x = -1/3$

RA: 60° RA: 70.53°

$\boxed{x = 120°, 240°, 109.47°, 250.53°}$

4.) $2\cot^2 x - 5 = 1$

$\cot^2 x = 3$

$\cot x = \pm\frac{\sqrt{3}}{1}$ $\frac{x}{y}$

RA: 30°

$\boxed{x = 30°, 150°, 210°, 330°}$

5.) $\sin^2 x - 5\sin x + 6 = 0$

6
-3 -2
-5

$(\sin x - 3)(\sin x - 2) = 0$

$\sin x = 3$, $\sin x = 2$

$\boxed{\text{DNE}}$

6.) $2\tan^2 x = 4\tan x$

$2\tan^2 - 4\tan x = 0$

$2\tan x(\tan x - 2) = 0$

$\tan x = 0$ $\tan x = 2$

RA: 63.43°

$\boxed{x = 0°, 180°, 63.43°, 243.43°}$

Solve each equation over the interval $[0, 2\pi)$. If necessary, round answers to the nearest hundredths.

7.) $3\tan^2 x = 1$

$\tan^2 x = 1/3$

$\tan x = \pm \frac{1}{\sqrt{3}}$ $\quad \frac{y}{x}$

RA: $\pi/6$

$\boxed{x = \pi/6, 5\pi/6, 7\pi/6, 11\pi/6}$

8.) $\sin x(2\sin x - 5) = 0$

$\sin x = 0$ $\quad \sin x = 5/2$ DNE

$\boxed{x = 0, \pi}$

9.) $3\cos^2 x + 5\cos x = 2$

$3\cos^2 x + 5\cos x - 2 = 0$

-6, 6, -1, 5

$(3\cos x - 1)(\cos x + 2) = 0$

$\cos x = 1/3$ $\quad \cos x = -2$ DNE

RA: 1.23

$\boxed{x = 1.23, 5.05}$

10.) $2\csc x + 1 = \csc x + 3$

$\csc x = 2$

$\sin x = 1/2$

RA: $\pi/6$

$\boxed{x = \pi/6, 5\pi/6}$

11.) $\sec^2 x - 5\sec x - 14 = 0$

-14, -7, $+2$, -5

$(\sec x - 7)(\sec x + 2) = 0$

$\sec x = 7$ $\quad \sec x = -2$

$\cos x = 1/7$ $\quad \cos x = -1/2$

RA: 1.43 $\quad$ RA: $\pi/3$

$\boxed{x = 1.43, 4.85, \pi/3, 5\pi/3}$

12.) $\cot x \tan x = \cot x$

$\cot x \tan x - \cot x = 0$

$\cot x(\tan x - 1) = 0$

$\cot x = 0$ $\quad \frac{x}{y}$ $\quad \tan x = 1$ $\quad \frac{y}{x}$

RA: $\pi/2$ $\quad$ RA: $\pi/4$

$\boxed{x = \pi/2, 3\pi/2, \pi/4, 5\pi/4}$