

Pythagorean Theorem Identities:

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

Double Angle Formula:

$$\sin 2x = 2\sin x \cos x$$

$$\tan 2x = \frac{2\tan x}{1 - \tan^2 x}$$

$$\cos 2x = \cos^2 x - \sin^2 x$$

$$\cos 2x = 2\cos^2 x - 1$$

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

$$\cos(A+B) = \cos A \cos B - \sin A \sin B$$

$$\cos(A-B) = \cos A \cos B + \sin A \sin B$$

$$\sin(A+B) = \sin A \cos B + \cos A \sin B$$

$$\sin(A-B) = \sin A \cos B - \cos A \sin B$$

$$\tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$

$$\tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

Name _____

Date _____

Advanced Algebra

Unit 10 Advanced Trigonometric Functions Assignment #26

Trig equations in Quadratic form. Solve the following.

1) $2\sin^2 x + \sin x = 0$

2) $2\cos^2 x = \cos x$

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

4) $2\sin^2 x + 3\sin x + 1 = 0$

5) $\sin^2 x = -4 - 4\cos x$

6) $3\tan x = \cot x$

7) $\cos 2x - \cos x = 0$

8) $\cos 2x + 3\cos x = 1$

9) $\cos 2x + \sin x = 0$

10) $\sin 4x = \sin 2x$

11) $\sin x + \cos x = \sqrt{2}$

12) $2\cos^2 x = 3\sin x$

Use your formulas to find the exact value of the following.

1) $\sin \theta = \frac{4}{5}$ and $\cos \theta = \frac{3}{5}$ find the exact values of

a) $\sin 2\theta$

b) $\cos 2\theta$

c) $\tan 2\theta$

2) If $\cos A = \frac{1}{3}$, find $\cos 2A$

3) If $\sin \theta = \frac{-2}{3}$ find $\cos 2\theta$

3) If $\cos \theta = \frac{2}{5}$ where $270^\circ < \theta < 360^\circ$, find the exact value of

a) $\sin \theta$

b) $\sin 2\theta$