

Math 181 Chapter 5-6 **Name** _____

Show your work in the spaces provided.

I. Complete the following identities:

1. $\sin(A \pm B) =$ _____ 2. $\cos(A \pm B) =$ _____

3. $\sin 2A =$ _____ 4. $\cos 2A =$ _____

5. $\sin \frac{A}{2} =$ _____ 6. $\cos \frac{A}{2} =$ _____

II. Use the above identities to find the exact values for the following:

1. $\cos 75^\circ$

2. $\sin \frac{\pi}{8}$

III. Given $\sin \theta = \frac{-3}{5}$ with θ in QIII, use identities to find:

1. $\sin 2\theta$

2. $\cos 2\theta$

3. $\sin \frac{\theta}{2}$

4. $\cos \frac{\theta}{2}$

IV. Prove the following identities:

1. $\sec A - \cos A = \tan A \sin A$

2. $\sin (270^\circ - B) = -\cos B$

3. $\cot x - \tan x = \frac{\cos 2x}{\sin x \cos x}$

V. Find the exact values for x where $0 < x < 360^\circ$

1. $2 \tan x + 2 = 0$

2. $\sin 2x - \cos x = 0$

3. $\cos (2x + 30^\circ) = \frac{\sqrt{3}}{2}$

VI. Find all radian solutions to the following equation.

$2 \sin^2 3x + \sin 3x = -1$