

Name: \_\_\_\_\_

Show all work on the quiz in the space provided. Correct answers without work will not receive credit. There are to be no calculators used for this quiz.

**Potentially useful formulas:**

$$\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \cos \alpha \sin \beta$$

$$\sin 2\theta = 2 \sin \theta \cos \theta$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

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

$$\tan(\alpha \pm \beta) = \frac{\tan \alpha \pm \tan \beta}{1 \mp \tan \alpha \tan \beta}$$

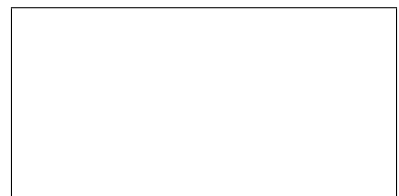
$$\tan 2\theta = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$

$$\sin \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{2}}$$

$$\cos \frac{\theta}{2} = \pm \sqrt{\frac{1 + \cos \theta}{2}}$$

$$\tan \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}} = \frac{1 - \cos \theta}{\sin \theta} = \frac{\sin \theta}{1 + \cos \theta}$$

(2 points) 1. Find the exact value, without using a calculator, of  $\cos(\frac{3\pi}{8})$ .



(8 points) 2. Let  $\theta$  be an angle in the second quadrant with  $\sin \theta = \frac{6}{7}$ . Without using a calculator, find the exact values of

a)  $\sin(2\theta)$

b)  $\cos(2\theta)$

c)  $\tan(2\theta)$ .

(a)

(b)

(c)