Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Section 04-04-Sample Quiz-Half Angle Identities

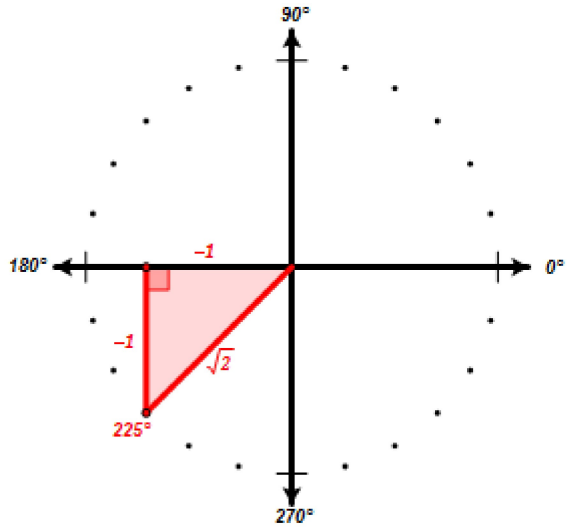
Multiple Choice

Identify the choice that best completes the statement or answers the question.

____ 1. Find the exact value of $\cos(112.5°)$ using the half angle identities.

$$\cos\left(\frac{\theta}{2}\right) = \pm\sqrt{\frac{1+\cos\theta}{2}}$$

Use the diagram below to assist you.



a. $-\dfrac{\sqrt{2+\sqrt{2}}}{2}$

b. $-\dfrac{\sqrt{2-\sqrt{2}}}{2}$

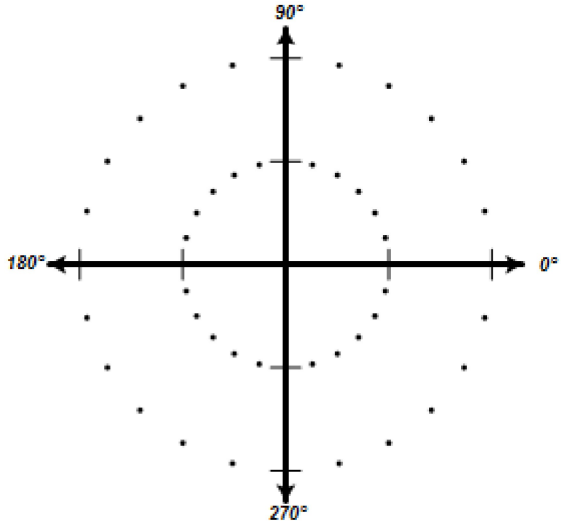
c. $-\dfrac{\sqrt{\sqrt{2}-2}}{4}$

d. $-\dfrac{\sqrt{2+\sqrt{2}}}{4}$

____ 2. Find the exact value of $\sin(15°)$ using the half angle identities.

$$\sin\left(\frac{\theta}{2}\right) = \pm\sqrt{\frac{1-\cos\theta}{2}}$$

Use the diagram below to assist you.



a. $\dfrac{\sqrt{1-\sqrt{2}}}{2}$

b. $\dfrac{\sqrt{2-\sqrt{2}}}{2}$

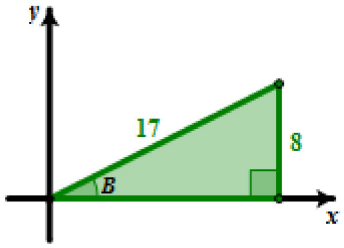
c. $\dfrac{\sqrt{2-\sqrt{3}}}{2}$

d. $\dfrac{\sqrt{\sqrt{3}-2}}{2}$

____ 3. Given that $\sin(B) = \frac{8}{17}$ and that ***B*** exists in the first quadrant, determine the exact value of $\sin\left(\frac{B}{2}\right)$

$$\sin\left(\frac{\theta}{2}\right) = \pm\sqrt{\frac{1-\cos\theta}{2}}$$

Use the diagram below to assist you.



a. $\frac{\sqrt{17}}{17}$

b. $\frac{3\sqrt{17}}{17}$

c. $\frac{15}{17}$

d. $\sqrt{\frac{15}{17}}$

____ 4. Using basic and half angle trigonometric identities simplify the following expression:

$$\frac{2\cdot\left(\cos\frac{\theta}{2}\right)^2 - 1}{\sin\theta}$$

a. $\sin(\theta)$

b. $\cos(\theta)$

c. $\tan(\theta)$

d. $\cot(\theta)$