**Precalculus Midterm Review** **Name** _____

1. Find, in degrees, the measure of a $\frac{2}{3}$ clockwise rotation.

a) $135°$ b) $-120°$ c) $-240°$ d) $-270°$

2. Find the exact value of $\cot 120°$.

a) $-\sqrt{3}$ b) $-\frac{\sqrt{3}}{3}$ c) $-\frac{\sqrt{3}}{2}$ d) $-\frac{\sqrt{2}}{2}$

3. What could the terminal points of a $585°$ angle drawn in standard position?

a) $\left(\frac{\sqrt{3}}{2},-\frac{1}{2}\right)$ b) $\left(-\frac{\sqrt{3}}{2},-\frac{1}{2}\right)$ c) $\left(-\frac{1}{2},-\frac{1}{2}\right)$ d) $\left(-\frac{\sqrt{3}}{2},\frac{1}{2}\right)$

4. $\cos 330° - \sin 315° =$

a) $\sqrt{3}$ b) $\frac{\sqrt{3}+2}{2}$ c) $\frac{\sqrt{3}+\sqrt{2}}{2}$ d) $\frac{\sqrt{3}-\sqrt{2}}{2}$

5. Which of the following statements is impossible?

a) $3\sin\theta = -5$ b) $224\tan\theta = 225$ c) $5\cos\theta = -4$ d) $\cos A + \sin B = 1.99$

6. If $\sin\theta = -\frac{8}{17}$, $\theta$ in quadrant III, which of the following has the largest value?

a) $\cos\theta$ b) $\sec\theta$ c) $\tan\theta$ d) $\cot\theta$

7. If $\cos\theta = \frac{3}{5}$, $\theta$ in quadrant IV, find $\tan 2\theta$

a) $\frac{3}{4}$ b) $-\frac{3}{4}$ c) $-\frac{4}{3}$ d) $\frac{4}{3}$

8. Which of the following curves has the longest period?

a) $y = 2\cos x$ b) $y = 4\sin\left(\frac{1}{3}x\right)$ c) $y = 5\cos(4x)$ d) $y = -2\sin\left(\frac{1}{10}x - 10°\right)$

9. Find the phase shift of $y = 3 + \cos\left(\frac{1}{2}x - 20°\right)$

a) $10°$ left b) $10°$ right c) $40°$ left d) $40°$ right

10. Which of the following is **not** equal to $\cos x$?

a) $\frac{\sin x}{\tan x}$ b) $+\sqrt{1-\sin^2 x}$ c) $\frac{1}{\sec x}$ d) All are

11. Which of the following is a solution to the equation $\cos^2 x + \cos x = 0$ ?

I. $x = 90°$ II. $x = 180°$ III. $x = 270°$

a) I only b) I and III only c) II and III only d) I, II and III