Name:_____ **PC 11: CH2. Understanding Trigonometry as an Unit Circle 2025:**

1. REVIEW: Without using a calculator, what is $\left[\sin\left(77.3°\right)\right]^2+\left[\cos\left(77.3°\right)\right]^2$ equal to? Explain:

2. REVIEW: Without using a calculator, what is $\sin\theta$ divided by $\cos\theta$ equal to? Explain:

3. Without using a calculator, what is $\tan 45°$ equal to? Explain:

4. When solving for an angle from $\sin\theta = 0.8$, how many answers are there for the angle between 0 and 360 degrees? Why?

5. When solving for an angle from $\cos\theta = 0.125$, how many answers are there for the angle between 0 and 360 degrees? Why?

6. What does it mean that an angle is in standard position?

7. When looking at an unit circle, the radius is equal to 1. When given an angle in standard position, like 30 degrees, $\sin 30° = 0.5$ and $\cos 30° = \frac{\sqrt{3}}{2}$. What do the values of 0.5 and $\frac{\sqrt{3}}{2}$ represent in an unit circle? (IMPORTANT)

8. If $\sin\theta$ is equal to a negative ratio, then which quadrants will the angle be? What if the ratio is positive, which quadrant is it in?

9. If $\cos\theta$ is equal to a negative ratio, then which quadrants will the angle be? What if the ratio is positive, which quadrant is it in?

10. If $\tan\theta$ is equal to a negative ratio, then which quadrants will the angle be? What if the ratio is positive, which quadrant is it in?

11. If θ is in quadrant 3, then which trig ratio will be negative? $\sin\theta$, $\cos\theta$, or $\tan\theta$?

12. If θ is in quadrant 4, then which trig ratio will be negative? $\sin\theta$, $\cos\theta$, or $\tan\theta$?

13. When solving $\sin\theta = 0.8$, you will get two answers θ_1 *and* θ_2. What property between the two answers θ_1 *and* θ_2 is true?

    a) They are coterminal
    b) They have the same reference angle
    c) They are in the same quadrant
    d) They add up to $360°$

14. For each of the following equations, indicate which quadrant the angle will be in. Then Solve for θ, with $0 \le \theta \le 360°$. [REMEMBER: There are TWO answers!]

a) $\sin\theta = 0.8$	b) $\cos\theta = 0.85$	c) $\tan\theta = 0.3$
a) $\sin\theta = -0.9$	b) $\cos\theta = 0.125$	c) $\tan\theta = 0.25$

Name:_____ **PC 11 Ch2: Solving Equations that Involve Trigonometry:**

1. When solving an equation that involves the sine function, for what value(s) of 'k" will the equation generate two solutions? $\sin\theta = k$

2. When solving an equation that involves the sine function, for what value(s) of 'k" will the equation generate two solutions? $\tan\theta = k$

3. Which of the following will have no solutions?

a) $\sin\theta = 1.2$ b) $\cos\theta = -1.3$ c) $\tan\theta = 2.2$ d) $\sin\theta + \cos\theta = 2.1$

3. When solving the following equation, how many solutions between 0 and 360 degrees will there be? Explain: $\sin^2\theta = \frac{3}{5}$

4. How many answers will there be for $\sin\theta = 1$ with $0 \le \theta \le 360°$? Why isn't there two answers like all the other angles? Explain:

5. How many answers will there be for $\cos\theta = 1$ with $0 \le \theta \le 360°$? Why isn't there two answers like all the other angles? Explain:

6. How many answers will there be for $\sin\theta = 0$ with $0 \le \theta \le 360°$? Why isn't there two answers like all the other angles? Explain:

7. Solve for θ with $0 \le \theta \le 360°$.

a) $7\cos\theta + 2 = 0$	b) $10\cos^2\theta - 3 = 1$
c) $(\cos\theta - 1)(5\sin\theta + 2) = 0$	d) $10\sin^2\theta - 7\sin\theta - 1 = 0$
e) $8\cos^2\theta - 22\cos\theta + 15 = 0$	f) $0 = 40\tan^2\theta - 29\tan\theta + 6$