Review for Quiz 5 (7.1 to 7.2)

Part 1: Calculator

1. Find an angle that is coterminal with $130°$.

2. Convert an angle of 15 radians to degrees. Leave your answer as an exact value.

3. Solve $\sin\theta = -\dfrac{1}{5}$ where $0 \leq \theta \leq 2\pi$.

4. On the interval $[0,\ 2\pi]$, state the interval where the function $f(x) = \sqrt{\dfrac{3}{\cos x}}$ is defined.

5. If $P(\theta)$ is a point on the unit circle, then $P(12)$ appears in which quadrant?

6. A circle with a radius of 20 cm and a central angle of $126°$ subtends the arc AB. Find the length of arc AB.

7. If $\cos\theta > 0$ and $\csc\theta < 0$, then the angle θ appears in which quadrant?

8. Find an angle coterminal with $-\dfrac{27\pi}{11}$.

9. If a point with the coordinates $\left(\dfrac{3}{5},\ y\right)$ is on the unit circle, find the value(s) of y.

10. Explain why the expression $\cos(\theta - \pi)$ is equivalent to $-\cos\theta$.

11. On the interval $[0,\ 2\pi]$, for what values of x is the function $y = \sec x$ undefined?

Mr. Smith

Part 2: Non-Calculator

1. Convert the angle $72°$ to radians. Leave your answer as a fraction in terms of π.

2. What is the exact value of $\sin^2(45°) + \cos^2(60°)$?

3. Convert the angle $17°$ to radians. Leave your answer as a fraction in terms of π.

4. What is the value of $\sin^2(112°) + \cos^2(112°)$?

5. What is the maximum value of $6\left(\cos^2 x - \sin^2 x\right) - 3$. Explain your reasoning.

6. Solve for x: $\sin^2 x - 3\cos x = 3$ $(0 \le x \le 2\pi)$. (**Hint**: Use the fact that $\sin^2 x + \cos^2 x = 1$)

7. Solve for x: $\tan^2 x = \dfrac{\sqrt{3}}{3} \cdot \tan x$, where $x \in \mathbb{R}$.

8. If $\sin\theta = \dfrac{5}{7}$ and $\cos\theta < 0$, find the exact value of $\cot\theta$.

9. Find the interval(s) where $\sin\theta < \cos\theta$, if $0 \le \theta \le 2\pi$. Justify your response with an explanation or with a diagram.

10. Solve for θ: $\tan 3\theta = -1$, where $0 \le \theta \le 2\pi$.

11. Solve for θ: $\sin 2\theta = \dfrac{\sqrt{3}}{2}$, where $\theta \in \mathbb{R}$.

Part 3: Calculator

1. Find an angle that is coterminal with $\dfrac{13\pi}{7}$.

2. Convert an angle of 3 radians to degrees. Leave your answer as an exact value.

3. Solve $\cos\theta = -\dfrac{1}{7}$, where $0 \le \theta \le 2\pi$.

4. On the interval $\left[0,\ 2\pi\right]$, state the interval where the function $f(x) = \sqrt{2\sin x}$ is defined.

5. If $P(\theta)$ is a point on the unit circle, then $P(18)$ appears in which quadrant?

6. A circle with a radius of 5 cm and a central angle of $80°$ subtends the arc AB. Find the length of arc AB.

7. If $\sin\theta > 0$ and $\tan\theta < 0$, then the angle θ appears in which quadrant?

8. Find an angle coterminal with $\dfrac{7\pi}{9}$.

9. If a point with the coordinates $\left(x,\ -\dfrac{5}{13}\right)$ is on the unit circle, find the value(s) of x.

10. Explain why the expression $\sin\left(\theta - \dfrac{\pi}{2}\right)$ is equivalent to $-\cos\theta$.

11. On the interval $\left[0,\ 2\pi\right]$, for what values of x is the function $y = \csc x$ undefined?

Part 4: Non-Calculator

1. Convert the angle $12°$ to radians. Leave your answer as a fraction in terms of π.

2. What is the value of $\sin^2\left(30°\right)+\cos^2\left(60°\right)$?

3. Convert the angle $9°$ to radians. Leave your answer as a fraction in terms of π.

4. What is the value of $\sin^2\left(5\right)+\cos^2\left(5\right)$?

5. What is the maximum value of $2\left(\cos^2 x-\sin^2 x\right)-4$. Explain your reasoning.

6. Solve for x: $\cos^2 x-3\sin x=3$ $\left(0\leq x\leq 2\pi\right)$. (**Hint**: Use the fact that $\sin^2 x+\cos^2 x=1$)

7. Solve for x: $\tan^2 x=\sqrt{3}\cdot\tan x$, where $x\in\mathbb{R}$.

8. If $\cos\theta=-\dfrac{5}{7}$ and $\tan\theta<0$, find the exact value of $\csc\theta$.

9. Find the interval(s) where $\sin\theta>\cos\theta$, if $0\leq\theta\leq 2\pi$. Justify your response with an explanation or with a diagram.

10. Solve for θ: $2\cos 2\theta-1=0$, where $0\leq\theta\leq 2\pi$.

11. Solve for θ: $\cot 2\theta=\sqrt{3}$, where $\theta\in\mathbb{R}$.