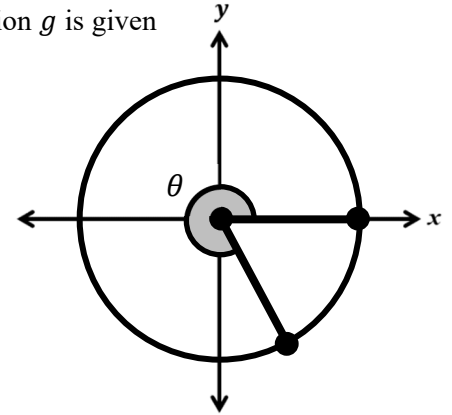# 3.4 Sine and Cosine Function Graphs

AP Precalculus   Name: _____

1. We are given an angle θ, in standard position as shown in the figure. The function g is given by $g(a) = \sin a$. For the angle α (not shown), $\theta < \alpha < 2\pi$.
   Which of the following is true?

   (A) $g(\alpha) < g(\theta)$ (B) $g(\alpha) > g(\theta)$ (C) $g(\alpha) = g(\theta)$

   (D) Depending on the value of α, sometimes $g(\alpha) < g(\theta)$ and sometimes $g(\alpha) > g(\theta)$.

2. We are given an angle θ, in standard position as shown in the figure. The function g is given by $g(a) = \cos a$. For the angle α (not shown), $\theta < \alpha < \pi$.
   Which of the following is true?
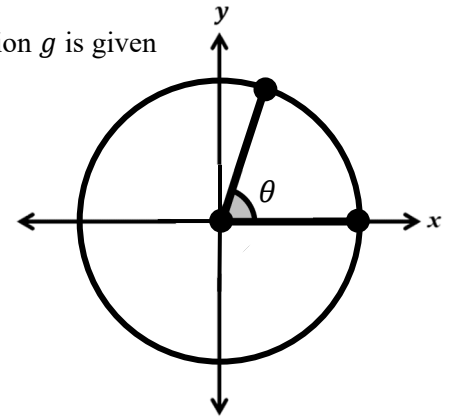
   (A) $g(\alpha) < g(\theta)$ (B) $g(\alpha) > g(\theta)$ (C) $g(\alpha) = g(\theta)$

   (D) Depending on the value of α, sometimes $g(\alpha) < g(\theta)$ and sometimes $g(\alpha) > g(\theta)$.

The function f is given by $f(\theta) = \cos\theta$. Describe the concavity of f on the interval, and if f is increasing or decreasing on the interval.

3. $0 < \theta < \dfrac{\pi}{2}$	4. $\dfrac{\pi}{2} < \theta < \pi$	5. $\dfrac{3\pi}{2} < \theta < 2\pi$

The function f is given by $f(\theta) = \sin\theta$. Describe the concavity of f on the interval, and if f is increasing or decreasing on the interval.

6. $\dfrac{\pi}{2} < \theta < \pi$	7. $\pi < \theta < \dfrac{3\pi}{2}$	8. $\dfrac{3\pi}{2} < \theta < 2\pi$

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