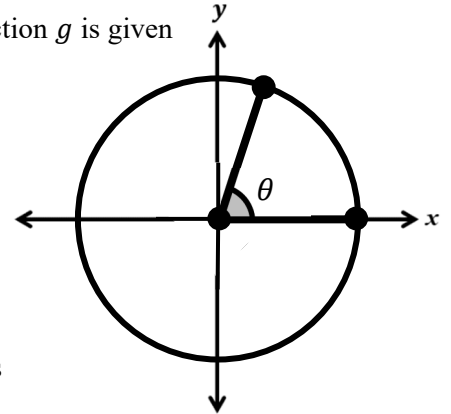


### 3.4 Sine and Cosine Function Graphs

AP Precalculus

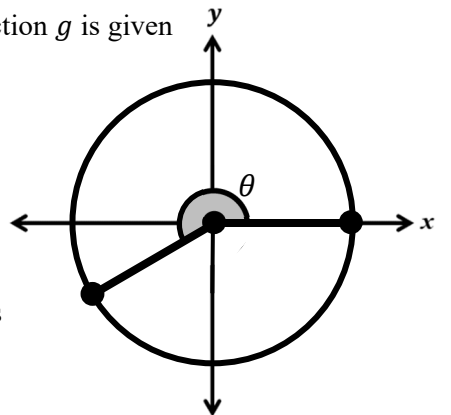
Name: \_\_\_\_\_

1. We are given an angle  $\theta$ , in standard position as shown in the figure. The function  $g$  is given by  $g(a) = \sin a$ . For the angle  $\alpha$  (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  $\alpha$ , sometimes  $g(\alpha) < g(\theta)$  and sometimes  $g(\alpha) > g(\theta)$ .

2. We are given an angle  $\theta$ , in standard position as shown in the figure. The function  $g$  is given by  $g(a) = \cos a$ . For the angle  $\alpha$  (not shown),  $\theta < \alpha < \frac{3\pi}{2}$ . 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  $\alpha$ , 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.  $\frac{\pi}{2} < \theta < \pi$

4.  $\pi < \theta < \frac{3\pi}{2}$

5.  $\frac{3\pi}{2} < \theta < 2\pi$

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.  $0 < \theta < \frac{\pi}{2}$

7.  $\frac{\pi}{2} < \theta < \pi$

8.  $\frac{3\pi}{2} < \theta < 2\pi$

4. Concave up Increasing	3. Concave up Decreasing	2. B	1. D
8. Concave up Increasing	7. Concave down Decreasing	6. Concave down Increasing	5. Concave down Increasing

Answers to 3.4 CA #1