

## Multiple Choice: Graphs of Sine, Cosine and Tangent

Directions: Answer the following.

1. What is the domain of the sine and cosine curves?
  - A. All Real Numbers except multiples of  $180^\circ$
  - B. All Real Numbers
  - C. All Real Numbers except odd multiples of  $90^\circ$
  - D. Only positive Real Numbers
2. What is the domain of the tangent curve?
  - A. All Real Numbers except even multiples of  $90^\circ$ .
  - B. All Real Numbers
  - C. All Real Numbers except multiples of  $180^\circ$ .
  - D. All Real Numbers except odd multiples of  $90^\circ$ .
3. Which two functions' graphs are the most similar?
  - A. Sine and Tangent
  - B. Sine and Cosine
  - C. Cosine and Tangent
  - D. All three are basically the same.
4. Which two functions have the same y-intercept? What is the y-intercept of these two functions?
  - A. The sine and the tangent curve both have  $y = 1$  as their y-intercepts.
  - B. The cosine and the tangent curve both have  $y = 1$  as their y-intercepts.
  - C. The cosine and the tangent curve both have  $y = 0$  as their y-intercepts.
  - D. The sine and the tangent curve both have  $y = 0$  as their y-intercepts.
5. Which two functions have the same x-intercepts? What is the x-intercepts of these two functions?
  - A. The sine and the tangent curve both have  $x = \text{multiples of } 180^\circ$  as their x-intercepts.
  - B. The sine and the tangent curve both have  $x = \text{multiples of } 90^\circ$  as their x-intercepts.
  - C. The cosine and the tangent curve both have  $x = \text{multiples of } 180^\circ$  as their x-intercepts.
  - D. The cosine and the tangent curve both have  $x = \text{multiples of } 90^\circ$  as their x-intercepts.
6. For what values of  $x$  does  $\sin x = 1$ ?
  - A.  $x = 0^\circ, 180^\circ, -180^\circ$
  - B.  $x = 90^\circ, -270^\circ$
  - C. The sine of  $x$  does not equal 1 at any point.
  - D.  $x = 30^\circ, 60^\circ, 120^\circ$  and  $150^\circ$
7. For what values of  $x$  does  $\cos x = 1$ ?
  - A.  $x = 0^\circ, 360^\circ, -360^\circ$
  - B.  $x = 90^\circ, 270^\circ, -90^\circ, -270^\circ$
  - C. The cosine of  $x$  does not equal 1 at any point.
  - D.  $x = 30^\circ, 60^\circ, 120^\circ$  and  $150^\circ$
8. For what values of  $x$  does  $y = \tan x$  have vertical asymptotes?
  - A.  $x = 30^\circ, 60^\circ, 120^\circ$  and  $150^\circ$
  - B. There are not any vertical asymptotes.
  - C.  $x = 0^\circ, 180^\circ, -180^\circ$
  - D.  $x = 90^\circ, 270^\circ, -90^\circ, -270^\circ$

Answers:

1. B

@ Both of these curves have the domain All Real Numbers.

2. D

@ The tangent function is not defined when  $x$  equals any odd multiple of  $90^\circ$ .

3. B

@ The sine and cosine curves are the most similar.

4. D

@ Both the sine and the tangent curve cross the  $y$ -axis at  $y = 0$ .

5. A

@ Both the sine and tangent curve cross the  $x$ -axis at all multiples of  $180^\circ$ .

6. B

@ Sine of  $x$  equals 1 when  $x = 90^\circ$  and  $-270^\circ$ .

7. A

@ Cosine of  $x$  equals 1 when  $x = 0^\circ, 360^\circ$  and  $-360^\circ$ .

8. D

@ The tangent curve is not defined when  $x = 90^\circ, 270^\circ, -90^\circ, -270^\circ$ .