AP Calculus BC

Multiple Choice WS #1

Name:_____

These questions should be done without a calculator.

1. **Multiple Choice** Which of the following is an equation of the line through $(-3, 4)$ with slope $1/2$?

   (A) $y - 4 = \frac{1}{2}(x + 3)$ **(B)** $y + 3 = \frac{1}{2}(x - 4)$

   (C) $y - 4 = -2(x + 3)$ **(D)** $y - 4 = 2(x + 3)$

   (E) $y + 3 = 2(x - 4)$

2. **Multiple Choice** Which of the following gives the domain of $f(x) = \frac{x}{\sqrt{9 - x^2}}$?

   (A) $x \neq \pm 3$ **(B)** $(-3, 3)$ **(C)** $[-3, 3]$

   (D) $(-\infty, -3) \cup (3, \infty)$ **(E)** $(3, \infty)$

3. **Multiple Choice** If $f(x) = 2x - 1$ and $g(x) = x + 3$, which of the following gives $(f \circ g)(2)$?

   (A) 2 **(B)** 6 **(C)** 7 **(D)** 9 **(E)** 10

4. **Multiple Choice** The length L of a rectangle is twice as long as its width W. Which of the following gives the area A of the rectangle as a function of its width?

   (A) $A(W) = 3W$ **(B)** $A(W) = \frac{1}{2}W^2$ **(C)** $A(W) = 2W^2$

   (D) $A(W) = W^2 + 2W$ **(E)** $A(W) = W^2 - 2W$

5. **True or False** If $(f \circ g)(x) = x$, then g is the inverse function of f. Justify your answer.

For #6 and 7, use $f(x) = 2\cos(4x + \pi) - 1$.

6. **Multiple Choice** Which of the following is the domain of f?

(A) $[-\pi, \pi]$ (B) $[-3, 1]$ (C) $[-1, 4]$

(D) $(-\infty, \infty)$ (E) $x \neq 0$

7. **Multiple Choice** Which of the following is the range of f?

(A) $(-3, 1)$ (B) $[-3, 1]$ (C) $(-1, 4)$

(D) $[-1, 4]$ (E) $(-\infty, \infty)$

8. **Multiple Choice** Which of the following is the measure of $\tan^{-1}(-\sqrt{3})$ in degrees?

(A) $-60°$ (B) $-30°$ (C) $30°$ (D) $60°$ (E) $120°$

These questions may be answered using a graphing calculator.

9. **Multiple Choice** Which of the following gives the domain of $y = 2e^{-x} - 3$?

(A) $(-\infty, \infty)$ (B) $[-3, \infty)$ (C) $[-1, \infty)$ (D) $(-\infty, 3]$

(E) $x \neq 0$

10. **Multiple Choice** Which of the following gives the best approximation for the zero of $f(x) = 4 - e^x$?

(A) $x = -1.386$ (B) $x = 0.386$ (C) $x = 1.386$

(D) $x = 3$ (E) there are no zeros

11. **Multiple Choice** Which of the following describes the graph of the parametric curve $x = 3t, y = 2t, t \geq 1$?

(A) circle (B) parabola (C) line segment

(D) line (E) ray