

PreCalc BC**Review****Functions****Name:**

1. If $f(x) = 3x - 5$ and $g(y) = y^2 - 1$, then $f(g(z)) =$

- a) $(3z - 5)^2 - 1$ b) $3z^2 - 8$
 c) $3z^3 - 5z^2 - 3z + 5$ c) $z^2 + 3z - 6$
 e) $9z^2 - 30z - 26$

2. What is the domain of the function

$$f(x) = 4 - \sqrt{3x^3 - 7} ?$$

- a) $x \leq -1.33$ or $x \geq 1.33$ b) $x \geq 2.33$
 c) $x \geq 1.33$ d) $x \geq 1.53$
 e) $x \leq -2.33$ or $x \geq 2.33$

3. Point (3, 2) lies on the graph of the inverse of $f(x) = 2x^3 + x + A$. The value of A is

- a) 15 b) -15 c) 18 d) 54 e) -54

4. If $f(x) = \sqrt[3]{4x + 2}$ for all x , then $f^{-1}\left(\frac{1}{2}\right) =$

- a) 0.53 b) -0.30 c) 0.29
 d) -0.47 e) -0.38

5. If the zeros of the function $f(x)$ are 3, -2, and 1, what are the zeros of $f(x - 3)$?

- a) 0, -5, 2 b) 6, 1, 4 c) 9, -6, 3
 d) -9, 6, -3 e) 1, -2/3, 1/3

6. If $f(x) = e^x$ and $g(x) = f(x) + f^{-1}(x)$, what does $g(2)$ equal?

- a) 8.1 b) 7.5 c) 8.3 d) 5.1 e) 7.4

7. If $f(x) = \sqrt{x - 1}$ and $g(x) = \sin x$, then $g^{-1}(f(\sqrt{3})) =$

- a) 0.75 b) 1.41 c) 0.99
 d) 1.12 e) 1.03

8. If f represents an even function, which of the following is also an even function (are also even functions)?

- I. $g(x) = f(x + 1)$
 II. $h(x) = f(x) + 1$
 III. $k(x) = f^{-1}(x)$

- a) only I b) only II c) only III
 d) II and III e) I and III

9. Suppose the graph of $f(x) = 2x^2$ is translated 3 units down and 2 units right. If the resulting graph represents the graph of $g(x)$, what is the value of $g(-1.2)$?

- a) 2.88 b) 17.48 c) -0.12
 d) -1.72 e) 37.28

10. If $f(x) = ax + b$, which of the following make(s) $f(x) = f^{-1}(x)$?

- I. $a = -1$, $b =$ any real number
 II. $a = 1$, $b = 0$
 III. $a =$ any real number, $b = 0$

- a) only I b) only II c) only III
 d) I and II e) I and III

11. If $f(x) = \cos x$ and $g(x) = 2x + 1$ which of the following is an even function (are even functions)?

- I. $f(x) \cdot g(x)$
 II. $f(g(x))$
 III. $g(f(x))$

- a) only I b) only II c) only III
 d) I and II e) I and III