

Name: _____

Date: _____

Pre Calculus 12: Section 1.1 Introduction to Function Notations

1. Given the functions, $f(x) = 3x^2 - 2x$ and $g(x) = -\frac{3x}{2} + 3$, find the indicated values:

i) $f(3) \times g(4)$

ii) $2f(-2) - 3g(2)$

iii) $4f(2) \times g(-3)$

2. Given the functions, $f(x) = \sqrt{x} + 3$ and $g(x) = 2x^2 - 1$, find the indicated values:

i) $f(x) + 2g(x)$

ii) $4g(x+1)$

iii) $f(x^2) - 3g(x+1)$

iv) $f \circ g(x) = f(g(x)) =$

v) $g \circ f(x) = g(f(x)) =$

3. Given the functions, $f(x) = \frac{x^2 - 2x + 4}{x - 5}$, find the indicated values:

i) $f(4)$

ii) $f(5)$

iii) $f(2x-1)$

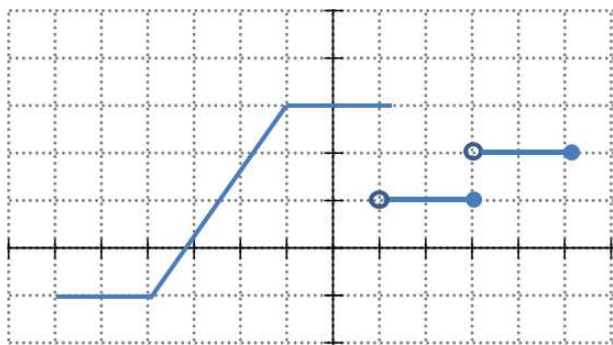
4. If $f(x) = x^2 + 3x - 10$, find the value of "x" that will make the expression true:

i) $f(x) = 0$

v) $f(x) = 8$

vi) $f(x) = -6$

5. Given the graph of $f(x)$, find the indicated values:



i) $f(2) =$

ii) $f(1) =$

iii) $f(4) =$

v) $f(?) = 3$

vi) $f(-4) \times f(3)$

6. If $f(x) = \frac{x^2 - x + 2}{4x^2 - 9}$, for what values of "x" will the function $f(x)$ be undefined? Show all your work and steps.

7. If $f(x) = 2x^4 - 3x^3 + \sqrt{8}x^2 + 10x - 9$, determine the value of i) $f(-2)$ ii) $f(2)$ iii) $f(-3) + f(3)$

8. Let $f(x) = 6x^2 - 11x + 4$ and $g(x) = 2x + 1$, find the following:

i) $f(g(x))$

ii) $g(f(x))$

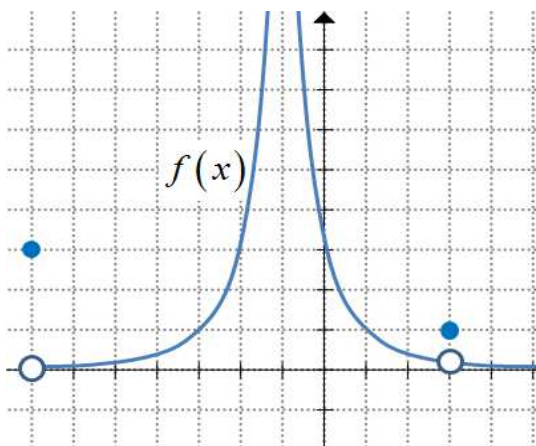
iii) $f(g(x)) - f(g(x))$

iv) $f(f(x)) = ?$

vi) $g(g(x)) = ?$

vii) $f(g(-2))$

9. Given the graph of $f(x)$, find the value of the following values:



i) $f(f(3)) =$

ii) $f(f(0)) =$

iii) $f(-1)$

v) $f(-7) \times f(0)$

vi) $f(f(x)) = x \quad x = ?$

vi) $f(f(f(-2)))$

10. The function $f(x)$ has the property that $f(2x+3) = 2f(x) + 3$ for all values of " x ". If $f(0) = 6$, what is the value of $f(9)$?

11. Given the piece-wise function, what is the value of $f(f(f(3)))$?

$$f(n) = \begin{cases} n^2 & \text{if } n \text{ is even} \\ n+1 & \text{if } n \text{ is odd} \end{cases}$$

12. The function " f " is defined for integer values only and satisfies the following, what is the value of $f(20)$?

$$f(n) = \begin{cases} n+2 & \text{if } n < 10 \\ f(n-2) & \text{if } n \geq 10 \end{cases}$$