

Substitution Practice 1

1. If $x = 3$, $y = -8$, and $z = -4$, what is $(x - y + z)(zy - x)$?
2. If $f(x) = 3x^3 - 7x^2 + 14x - 12$, what is $f(-2)$?
3. If $f(x) = x - 1$ and $g(x) = x^2 + x$, what is $g(f(2))$?
4. A new operation \odot is defined by the equation $x \odot y = \frac{2xy + 3x}{5y - x}$. What is the value of $6 \odot 9$?
5. Stacy decides that in order to save money, she needs to put her money in a savings account to build interest. The savings account that she chooses accrues interest that is compounded according to the formula $A = P(1 + \frac{r}{n})^{nt}$, where A is the current amount in the account, P is the principal or starting amount in the account, r is the interest rate, n is the number of times interest is compounded and t is the amount of time in months. If Stacy puts \$2500 into a savings account that has a rate of 4% and is compounded monthly, how much will be in the account after 2 years if she doesn't add any money to the account or take any money out?
6. Joey decides he wants to calculate the volume of the donut he is eating. He is eating a donut that is the shape of a torus. The volume of a torus is given by the equation $V = 2\pi^2 r^2 R$, where r is the tube radius and R is the torus radius. Joey has a donut with a tube radius of 2cm and a torus radius of 5cm. What is the volume of the donut Joey is eating?
7. If $f(x) = 3(x + 7)$ and $g(x) = x^2 + 3x - 5$, what is the value of $f(4) - g(2)$?

8. If $x = 3$, $y = 6$, $xy = g$, and $k = g + 3x - y$, what is the value of f ?

9. The determinant of the matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$ is given by the equation $ad - bc$. The determinant of the matrix $\begin{bmatrix} 3 & y \\ 3 & x \end{bmatrix}$ is 9. What is the value of $x - y$?

10. If $f(x, y) = \frac{x^2 - 4xy + y}{y^2 + 5xy + x}$, what is the value of $f(2, -1)$?

11. What is the set of real solutions for $|x|^2 - |x| - 6 = 0$?

- (a) 3
- (b) $-3, 3$
- (c) $-1, 3$
- (d) $1, 3$
- (e) $-3, -1, 1, 3$