ILLAWARRA TUTORING

This worksheet will help you learn how to use function notation to evaluate and interpret functions for various inputs. You will practise substituting numbers or expressions in place of the variable in a function expression.

Easy Questions

1. Use function notation to evaluate $f(2)$ if $f(x) = 3x + 2$.
2. Evaluate $f(0)$ for the function $f(x) = x^2 - 5$.
3. Determine $g(-3)$ when $g(x) = 4 - x$.
4. Find $h(8)$ given $h(x) = \dfrac{x}{2}$.
5. Compute $j(100)$ if $j(x) = 10$.

Intermediate Questions

6. Evaluate $f(-2)$ for the function $f(x) = 2x + 7$.
7. For $f(x) = x^2$, determine $f(3)$ and $f(-3)$.
8. Calculate $f(5)$ if $f(x) = \dfrac{x - 1}{2}$.
9. Write $f(a)$ for the function $f(x) = 4x - 9$.
10. Given $f(x) = x^2 + 3$, evaluate $f(2 + 1)$.
11. If $f(x) = \dfrac{1}{x + 1}$, compute $f(1)$ and $f(-2)$.
12. For $f(x) = x^2 - 4$, find $f(2)$ and verify whether $f(-2)$ equals $f(2)$.
13. Given $f(x) = 5x + 6$, calculate $2f(1) - f(3)$.
14. Express $f(x + 1)$ in terms of x if $f(x) = x^2 + 2$.
15. Determine $f(2)$ and $f(0)$ for the function $f(x) = 3(x - 2)$.
16. Compute $f(4)$ when $f(x) = 2 - x$.
17. Find $f(-1)$ for $f(x) = x^2 - x$.

18. If $f(x) = \dfrac{x+3}{x-1}$, determine $f(2)$.
19. Determine $f(3)$ for $f(x) = 7$.
20. Evaluate $f(10)$ for $f(x) = 3x - 1$.

Hard Questions

21. Given $f(x) = 2x^2 + 3$, express $f(a+1)$ in terms of a and simplify your answer.
22. Compute $f(4)$ if $f(x) = \dfrac{3}{x+1} + 2$.
23. For $f(x) = \dfrac{x^2-1}{x-1}$, firstly simplify $f(a)$ for $a \neq 1$, and then evaluate $f(3)$.
24. If $f(x) = |x-3|$, evaluate both $f(5)$ and $f(1)$.
25. Determine $f(4)$ and $f(-2)$ for the function $f(x) = \dfrac{x}{x}$, keeping in mind that $x \neq 0$.
26. Find $f(1)$ given $f(x) = \dfrac{2}{x+3}$.
27. Suppose $f(x) = kx + 1$ where k is a constant. Express $f(2)$ in terms of k, and then find the value of k if $f(2) = 7$.
28. Given $f(x) = \dfrac{3x-1}{x+2}$, express $f(2a)$ in terms of a and simplify your answer.
29. If $f(x) = 4 - x$, write the expression for $f(5+h)$ in terms of h.
30. For $f(x) = 2x^2 - x$, express $f(3x)$ in terms of x and simplify your result.