



O Level Maths

Topic: Function Notation and Operations on Functions

Instructions

Answer all questions. Show all necessary steps. Use function notation and operations on functions as appropriate.

Practice Problems

Function Notation:

1. If $f(x) = 2x + 5$, find $f(3)$.
2. For the function $g(x) = x^2 - 4x + 1$, find $g(2)$.
3. If $h(x) = \frac{1}{x+1}$, find $h(-2)$.
4. For the function $f(x) = x^3 - 2x + 1$, calculate $f(4)$.

Operations on Functions:

5. Given $f(x) = 2x + 1$ and $g(x) = x^2 - 3x + 2$, find $(f + g)(x)$.
6. For $f(x) = x^2 + 2x$ and $g(x) = 3x - 4$, find $(f - g)(x)$.
7. If $f(x) = 3x + 5$ and $g(x) = x^2 + 4x$, find $(f \cdot g)(x)$.
8. Given $f(x) = 4x - 1$ and $g(x) = \frac{1}{x}$, find $\left(\frac{f}{g}\right)(x)$.

Multiple-Choice Questions

1. If $f(x) = 2x + 5$ and $g(x) = x^2 - 3x + 2$, what is $(f + g)(x)$?
 - A. $2x^2 - 3x + 7$
 - B. $2x^2 - x + 7$
 - C. $2x^2 + 2x + 7$
 - D. $3x^2 - x + 7$
2. What is the value of $(f \cdot g)(x)$ if $f(x) = x^2 + 1$ and $g(x) = x - 2$?
 - A. $x^3 - x^2 + x - 2$
 - B. $x^3 - 2x^2 + x - 2$
 - C. $x^3 - x^2 - 2x + 2$
 - D. $x^3 - x^2 + 2x - 2$
3. If $f(x) = x^2 - 3x + 5$ and $g(x) = 2x + 1$, what is $(f - g)(x)$?
 - A. $x^2 - 5x + 6$
 - B. $x^2 - 5x + 4$
 - C. $x^2 - x + 4$
 - D. $x^2 - 5x + 1$
4. If $f(x) = 3x + 1$ and $g(x) = x^2 + 2x - 1$, what is $\left(\frac{f}{g}\right)(x)$?
 - A. $\frac{3x+1}{x^2+2x-1}$
 - B. $\frac{3x-1}{x^2+2x-1}$
 - C. $\frac{3x+1}{x^2-2x+1}$
 - D. $\frac{3x+1}{x^2+2x+1}$
5. If $f(x) = x^2 + 2x$ and $g(x) = x - 1$, what is $(f \cdot g)(x)$?
 - A. $x^3 - x^2 + 2x - 2$
 - B. $x^3 - 2x^2 + 2x - 2$
 - C. $x^3 - 2x^2 + 2x + 2$
 - D. $x^3 + 2x^2 - 2x + 2$

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