A Level Maths

Topic: Function Notation

Instructions

Answer all questions. Show complete working. Use the correct function notation throughout.

Practice Questions

1. Given the function $f(x) = 2x^2 + 3x - 5$, find:
   (i) $f(1)$
   (ii) $f(2)$
   (iii) $f(-3)$
2. For the function $g(x) = x^3 - 4x + 2$, find:
   (i) $g(0)$
   (ii) $g(1)$
   (iii) $g(-1)$
3. If $h(x) = 3x^2 - 2x + 4$, evaluate:
   (i) $h(2)$
   (ii) $h(-1)$
   (iii) $h(0)$
4. Find the value of $f(x) + g(x)$ where $f(x) = 2x^2 + 3x$ and $g(x) = x^2 - 4x + 1$.
5. If $f(x) = 2x - 1$ and $g(x) = x^2 + 3x$, find $f(g(x))$.
6. Given the function $f(x) = 4x^2 + 2x$, find $f(x + 1)$.
7. If $f(x) = 2x + 3$ and $g(x) = x^2 + 4x$, find $(f \circ g)(x)$.
8. For $f(x) = x^2 - 2x$ and $g(x) = x + 5$, evaluate $(f \circ g)(2)$.

Multiple-Choice Questions

1. If $f(x) = 3x + 2$, then $f(2)$ is:

   A. 6

   B. 8

   C. 7

   D. 5

2. If $g(x) = x^2 + 5x - 6$, then $g(-1)$ is:

   A. -2

   B. 2

   C. 1

   D. -1

3. For the function $h(x) = 2x - 3$, $h(4)$ is:

   A. 5

   B. 3

   C. 2

   D. 1

4. If $f(x) = 3x^2 - 2x$ and $g(x) = x + 1$, the value of $f(g(x))$ is:

   A. $3x^2 + 2x + 1$

   B. $3x^2 + 6x - 2$

   C. $3x^2 + 4x + 1$

   D. $3x^2 + 5x - 2$

5. If $f(x) = 2x^2 + x$ and $g(x) = x - 3$, what is the value of $f(g(x))$ when $x = 4$?

   A. 26

   B. 30

   C. 28

   D. 24