NUNAVUT MATH 30-1 · TRANSFORMATIONS, OPERATIONS & INVERSE FUNCTIONS · 10 QUESTIONS

Transformations, Operations & Inverse Functions — Practice Test

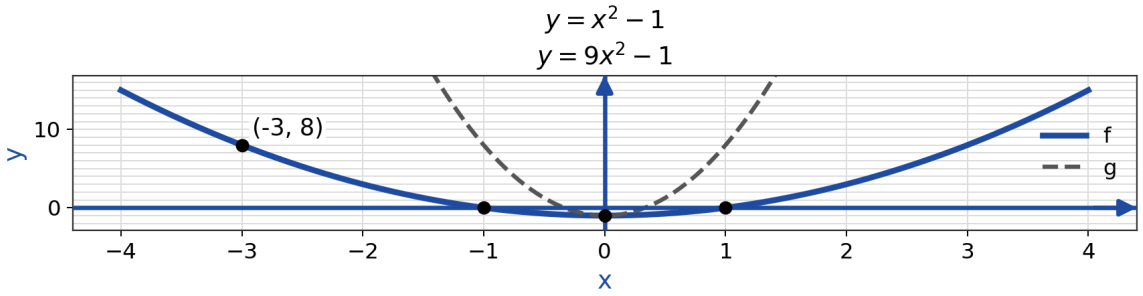
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1 **Given $f(x) = x^2 - 2x$ and $g(x) = 3x + 4$, an expression for $(f \circ g)(x)$ is**

- A $9x^2 + 24x + 16$
- B $3x^2 - 6x + 4$
- C $9x^2 + 18x + 8$
- D $9x^2 + 18x - 8$

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2 **The point (-3, 8) lies on the graph of y = f(x). On the graph of y = f(3x), the x-coordinate of the image of this point is**



ANSWER

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3 **Given f(x) = 2x + 5, the value of $f^{-1}(11)$ is**

A 27

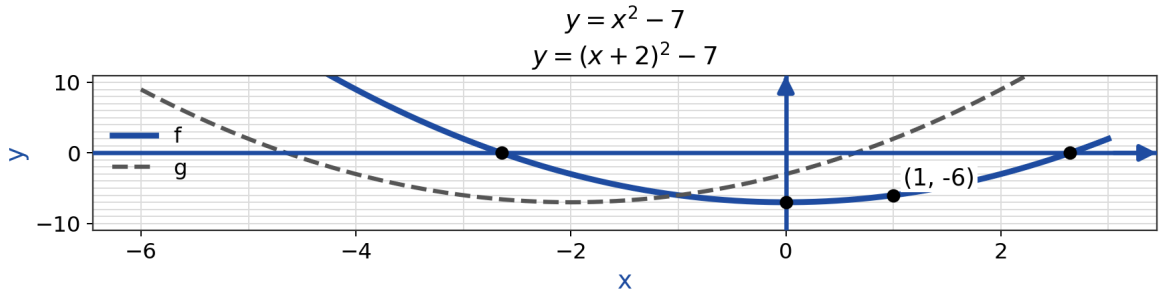
B -3

C 6

D 3

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4 **The point (1, -6) lies on the graph of y = f(x). The image of this point on the graph of y = f(-(x + 2)) is**



A (3, -6)

B (-3, -6)

C (-1, -6)

D (-3, 6)

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5 **Given f(x) = x² + 1 and g(x) = 2x - 5, the value of (f ° g)(-1) is**

ANSWER _____

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6 The domain of $y = f(x)$ is $-6 \leq x \leq 2$. The domain of $y = f(\frac{1}{2}x - 3)$ is

- **A** $-3 \leq x \leq 5$
- **B** $-9 \leq x \leq -1$
- **C** $-6 \leq x \leq 10$
- **D** $-12 \leq x \leq 4$

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7 If $f(x) = x^2 - 3$ and $(f \circ g)(x) = x^2 + 4x + 1$, then an expression for $g(x)$ is

- **A** $g(x) = x - 2$
- **B** $g(x) = x^2 + 4x + 4$
- **C** $g(x) = 2x + 1$
- **D** $g(x) = x + 2$

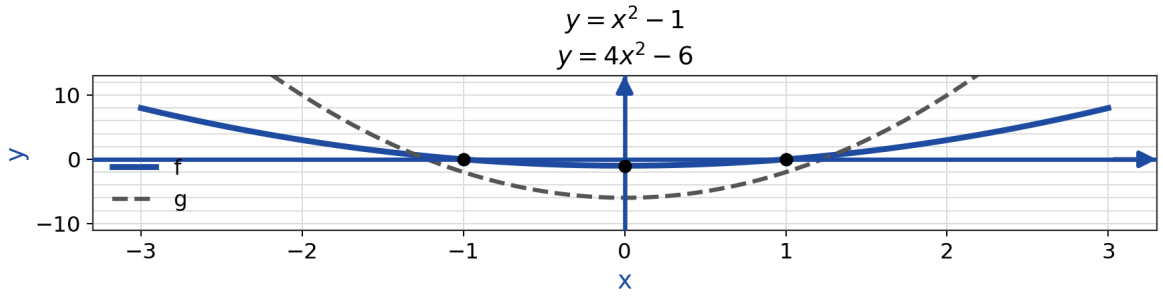
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8 The point (10, -3) lies on the graph of y = f(x) and is mapped to a new point using the mapping notation $(x, y) \rightarrow \left(\frac{x - 4}{3}, 2y - 1\right)$. The product of the coordinates of the image point is

ANSWER

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9 The graph of y = f(x), where $f(x) = x^2 - 1$, is vertically stretched by a factor of 4 about the x-axis and translated 2 units down. The equation of the resulting graph is



A $y = 4x^2 - 12$

B $y = 4x^2 - 6$

C $y = 16x^2 - 3$

D $y = 4x^2 + 2$

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10 **The inverse of the function $f(x) = \sqrt{x} + 2$, where $x \geq 0$, is**

A $f^{-1}(x) = (x + 2)^2$, where $x \geq -2$

B $f^{-1}(x) = \sqrt{x - 2}$

C $f^{-1}(x) = (x - 2)^2$, where $x \geq 2$

D $f^{-1}(x) = x^2 - 2$

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ANSWER KEY

1. C
2. -1
3. D
4. B
5. 50
6. C
7. D
8. -14
9. B
10. C

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