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

Transformations, Operations & Inverse Functions — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

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 $f(x) = x^2 + 1$ and $g(x) = 2x - 5$, the value of $(f \circ g)(-1)$ is**

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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

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

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