

Brett Robbins Academic Consulting

Math 30-1 Practice Test

Transformations, Operations & Inverse Functions

10 Questions

Original practice questions written to the Alberta curriculum, in the style of past diploma examinations. Work through each question, then check your answers with the key at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, contact Brett for clarification.

Question 1

The point $(-2, 5)$ lies on the graph of $y = f(x)$.

The image of this point on the graph of $y = f(x + 3) - 4$ is

- A) $(-5, 1)$
- B) $(1, 1)$
- C) $(-5, 9)$
- D) $(1, 9)$

Question 2

The graph of $f(x) = (x + 2)^2 - 3$ is transformed into the graph of $g(x) = f(x - 5) + 4$.

The coordinates of the vertex on the graph of $y = g(x)$ are

- A) $(-7, 1)$
- B) $(3, 1)$
- C) $(3, -7)$
- D) $(-7, -7)$

Question 3

Compared to the graph of $y = f(x)$, the graph of $y = -\frac{1}{2}f(x)$ has been

- A) reflected in the y -axis and vertically stretched by a factor of $\frac{1}{2}$
- B) reflected in the x -axis and vertically stretched by a factor of 2
- C) reflected in the x -axis and vertically stretched by a factor of $\frac{1}{2}$
- D) reflected in the y -axis and vertically stretched by a factor of 2

Question 4

The domain of $y = f(x)$ is $-3 \leq x \leq 5$.

The domain of $y = f(x - 4) + 2$ is

- A) $-7 \leq x \leq 1$
- B) $-3 \leq x \leq 5$
- C) $-1 \leq x \leq 7$
- D) $1 \leq x \leq 9$

Question 5

The point $(6, -4)$ lies on the graph of $y=f(x)$.

The corresponding point on the graph of the inverse, $y = f^{-1}(x)$, is

- A) (6, 4)
- B) (-4, 6)
- C) (-6, -4)
- D) (4, -6)

Question 6

Given $f(x) = 2x - 3$ and $g(x) = x^2 + 1$, the value of $(f \circ g)(2)$ is

- A) 7 B) 2
C) 6 D) 5

Question 7

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

- A) $3x^2 - 10$ B) $9x^2 + 12x + 8$
C) $9x^2 - 12x$ D) $9x^2 + 12x$

Question 8

Given $f(x) = x^2 + 3x$ and $g(x) = x - 2$, the value of $(f \circ g)(4)$ is

Question 9

The point $(4, 6)$ lies on the graph of $y = f(x)$.

The image of this point on the graph of $y = -f(2x)$ is

- A) (4, -6)
- B) (8, -6)
- C) (2, -6)
- D) (2, 6)

Question 10

The inverse of the function $f(x) = \frac{x-7}{2}$ is

A) $f^{-1}(x) = \frac{x+7}{2}$

B) $f^{-1}(x) = 2x + 7$

C) $f^{-1}(x) = 2x - 7$

D) $f^{-1}(x) = \frac{x-7}{2}$

Answer Key

- | | | |
|------|-------|-------|
| 1. A | 5. B | 9. C |
| 2. B | 6. A | 10. B |
| 3. C | 7. D | |
| 4. D | 8. 10 | |

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