

Unit 6: Transformations of Functions

CONCEPT

Name: _____ Date: _____

Answer each question with one short exact value. Use plain-text notation: fractions like $3/4$, coordinates like $(3, -4)$, and answers like "yes" or "even".

1. The point $(2, 5)$ is on the graph of $y = f(x)$. After the translation $g(x) = f(x) + 3$ (shift up 3), what is the new point that corresponds to it?

Answer: _____

2. The point $(4, 7)$ is on the graph of $y = f(x)$. After the translation $g(x) = f(x) - 2$ (shift down 2), what is the new point that corresponds to it?

Answer: _____

3. The point $(3, 6)$ is on the graph of $y = f(x)$. After the translation $g(x) = f(x - 1)$ (shift right 1), what is the new point that corresponds to it?

Answer: _____

4. The point $(5, 2)$ is on the graph of $y = f(x)$. After the translation $g(x) = f(x + 4)$ (shift left 4), what is the new point that corresponds to it?

Answer: _____

5. The point $(3, 4)$ is on the graph of $y = f(x)$. After the reflection $g(x) = -f(x)$ (reflection across the x-axis), what is the new point that corresponds to it?

Answer: _____

6. The point $(2, 9)$ is on the graph of $y = f(x)$. After the reflection $g(x) = f(-x)$ (reflection across the y-axis), what is the new point that corresponds to it?

Answer: _____

7. The point $(4, 3)$ is on the graph of $y = f(x)$. After the vertical scaling $g(x) = 2 \cdot f(x)$ (stretch by factor 2), what is the new point that corresponds to it?

Answer: _____

8. The point $(6, 8)$ is on the graph of $y = f(x)$. After the vertical scaling $g(x) = (1/2) \cdot f(x)$ (compress by factor $1/2$), what is the new point that corresponds to it?

Answer: _____

9. For $f(x) = x^2$, compute $f(-3)$. (This checks whether f is even by comparing to $f(3) = 9$.)

Answer: _____

10. A function is even if $f(-x) = f(x)$ for all x . For $f(x) = x^2$, is f an even function? Answer yes or no.

Answer: _____

11. A function is odd if $f(-x) = -f(x)$ for all x . For $f(x) = x^3$, compute $f(-2)$.

Answer: _____

12. The point $(1, 5)$ is on the graph of $y = f(x)$. After the combined transformation $g(x) = f(x) + 2$ followed by nothing else (shift up 2), what is the new point that corresponds to it?

Answer: _____