

Algebra 2 - Transformations of Functions - Test

Common Core F-BF.B.3, F-IF.C.7 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

This 45-minute test on transformations of functions has 9 questions worth 20 points in total. The questions move from direct skills to multi-step problems. Show your work, because partial credit is given for a correct setup and sound reasoning.

About this test

- Grade: Algebra 2
- Chapter: Transformations of Functions
- Standards: F-BF.B.3, F-IF.C.7
- Time: 45 minutes
- Total: 20 points

Question 1 - Describe a shift [2 pts]

Describe how $g(x) = |x+2| - 5$ differs from $f(x) = |x|$ and name the vertex.

Question 2 - Write an equation [2 pts]

Write the equation of $f(x) = x^2$ reflected over the x-axis and shifted up 4.

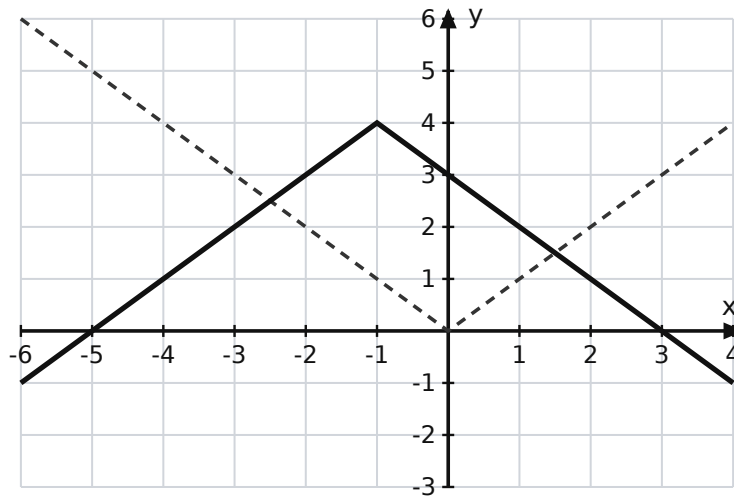
Question 3 - Transform a table [3 pts]

x	-1	0	2	4
f(x)	3	-1	2	6

Values of f.

Use the table to find the points of $g(x) = 2f(x+1)$.

Question 4 - Equation from a graph [2 pts]



Graph of g (dashed: $y = |x|$).

The graph shows a transformation of $f(x) = |x|$ (dashed). Write the equation of g .

Question 5 - Even or odd [2 pts]

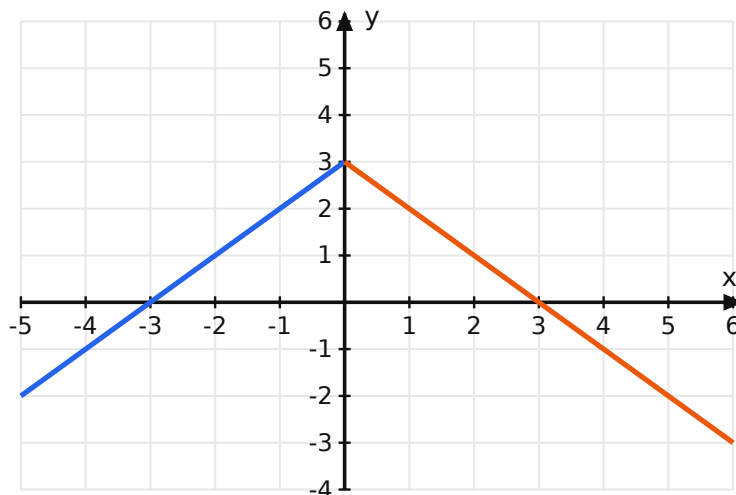
Determine whether each function is even, odd, or neither.

- a. $f(x) = x^4 + 2x^2$ (1 point)
- b. $g(x) = x^3 - 2x$ (1 point)

Question 6 - Domain and range [3 pts]

For $g(x) = 2\sqrt{x-3} - 4$, describe the transformations of $\sqrt{x}$, find $g(7)$, and state the domain and range.

Question 7 - Piecewise function [2 pts]



$$f(x) = x + 3 \text{ for } x < 0 \text{ and } f(x) = 3 - x \text{ for } x \geq 0.$$

The graph shows $f(x) = x + 3$ for $x < 0$ and $f(x) = 3 - x$ for $x \geq 0$. Find $f(-4)$, $f(0)$, and $f(5)$.

Question 8 - Arch [2 pts]

A tunnel's height is $y = -(x-4)^2 + 16$ feet. Describe the transformations of $y = x^2$ and find the maximum height and the width of the tunnel at the ground.

Question 9 - Find the error [2 pts]

Jamal says the graph of $g(x) = f(x) - 4$ is the graph of f moved 4 units left. Explain the error and describe the correct shift.