



3-7 Reteach to Build Understanding

Transformations of Polynomial Functions

1. A function $f(x)$ is called even, if replacing x by $-x$ does not change the function. If changing x to $-x$ results in changing $f(x)$ to $-f(x)$, then the function is called odd. Identify the functions as even, odd, or neither.

Type of Function: Unknown	Type of Function
a. $f(x) = -x^3 - 21x$	
b. $g(x) = 2x^3 + 5x - 8$	
c. $g(x) = 21x^4 - 6x^2 - 8$	

2. Tavon described the transformations of these functions. Put an X next to an incorrect answer, and correct the error.

Parent Function	Transformed Function	Description
$f(x) = x^3$	$g(x) = x^3 + 3$	Graph of $f(x)$ moved 3 units downward.
$f(x) = x^2$	$f(x) = (x + 6)^2$	Graph of $f(x)$ moved 6 units to the left.

3. $f(x) = x^2$ is the parent function of $g(x) = x^2 + 4x - 3$. Determine how the graph of $f(x)$ transformed to the graph of $g(x)$.

Step 1. $g(x) = x^2 + 4x - 3$

Given transformed function.

Step 2. $g(x) = x^2 + 4x - 3 + 4 - 4$

Add and subtract 4; so you can factor the first two terms.

Step 3. $g(x) = (x^2 + 4x + 4) - 3 - 4$

Group three terms inside parentheses.

Step 4. $g(x) = (x^2 + 2)^2 - 3 - 4$

_____.

_____.

Step 5. $g(x) = (x^2 + 2)^2 - 7$

Conclusion: The graph of $f(x)$ moved _____ to the left.

Then it moved _____.