

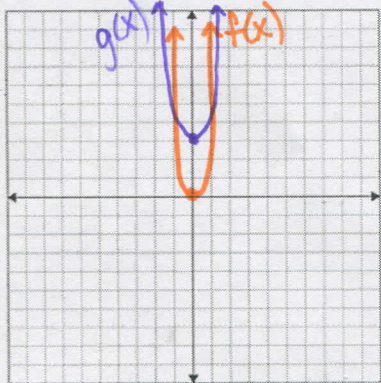
4.7 Transformation with Polynomial Functions DAY ONE CYU

Use when you get it right all by yourself
S Use when you did it all by yourself, but made a silly mistake
H Use when you could do it alone with a little help from teacher or peer
G Use when you completed the problem in a group
X Use when a question was attempted but wrong (get help)
N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Describe transformations	1	2 - 4	5, 6
Writing a function from a rule			7 - 10
Graphing functions	1	2 - 4	5, 6
Describing graphs		7 - 10	
Writing a function from descriptions			

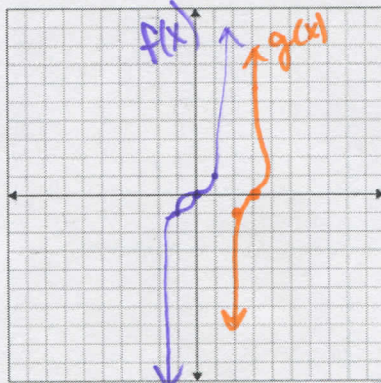
Describe the transformation of f represented by g . Then graph each function.

1. $f(x) = x^4, g(x) = x^4 + 3$



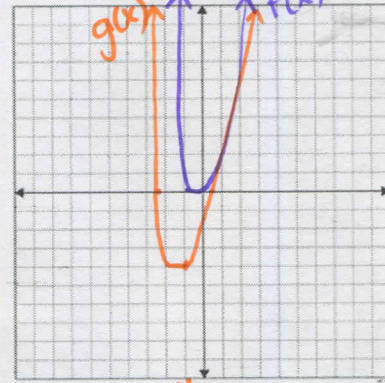
↑ 3u

2. $f(x) = x^5, g(x) = (x-2)^5 - 1$



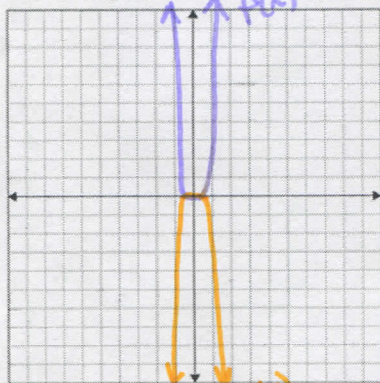
→ 2u; ↓ 1u

3. $f(x) = x^6, g(x) = (x+1)^6 - 4$



← 1u, ↓ 4u

4. $f(x) = x^4, g(x) = -2x^4$



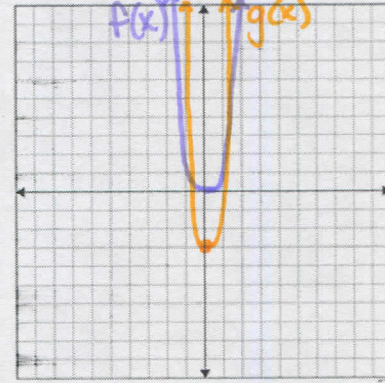
VS 2
R_x

5. $f(x) = x^3, g(x) = 5x^3 + 1$



VS 5; ↑ 1u

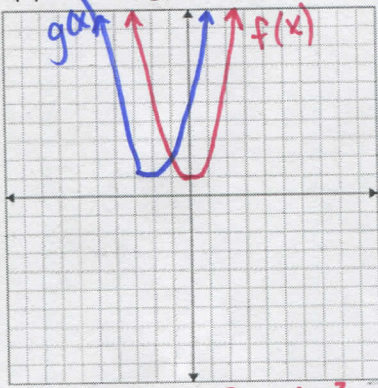
6. $f(x) = x^4, g(x) = (2x)^4 - 3$



HC 1/2, ↓ 3u

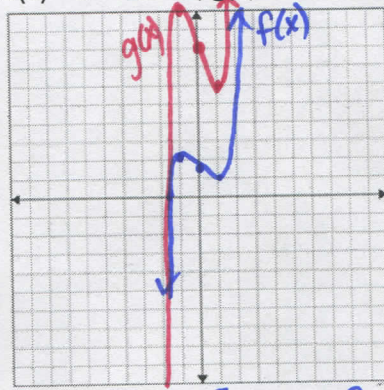
Write the function for g given its rule, and then graph each function. Describe the graph of g as a transformation of the graph of f .

7. $f(x) = x^4 + 1, g(x) = f(x + 2)$



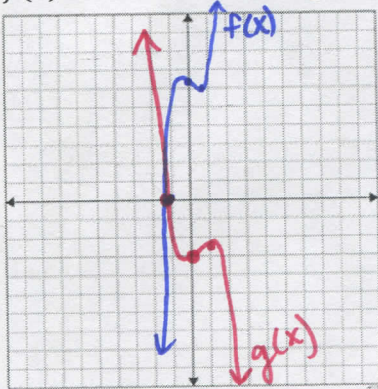
$g(x) = x^4 + 8x^3 + 24x^2 + 32x + 17$

8. $f(x) = x^5 - 2x + 3, g(x) = 3f(x)$



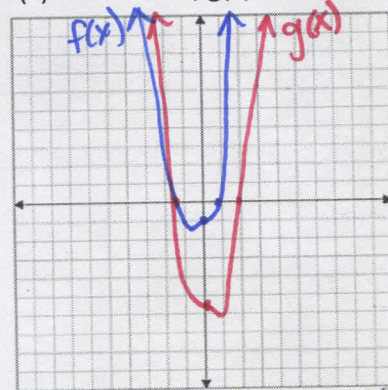
$g(x) = 3x^5 - 6x + 9$

9. $f(x) = 2x^3 - 2x^2 + 6, g(x) = -\frac{1}{2}f(x)$



$g(x) = -x^3 + x^2 - 3$

10. $f(x) = x^4 + x^3 - 1, g(x) = f(-x) - 5$



$g(x) = x^4 - x^3 - 6$

Write a rule and a function that represents the indicated transformation of the graph of f .

11. $f(x) = x^3 - 6$; translation 3 units left, followed by a reflection over the y -axis.

$h(x) = f(x - (-3)) \rightarrow g(x) = h(-x)$

$h(x) = x^3 + 9x^2 + 27x + 21 \rightarrow g(x) = -x^3 + 9x^2 - 27x + 21$

12. $f(x) = x^4 + 2x + 6$; vertical stretch by a factor of 2, followed by a translation 4 units right.

$h(x) = 2f(x) \rightarrow g(x) = h(x - 4)$

$h(x) = 2x^4 + 4x + 12 \rightarrow g(x) = 2x^4 - 32x^3 + 192x^2 - 508x + 508$

13. $f(x) = x^3 + 2x^2 - 9$; horizontal compression by a factor of $\frac{1}{3}$ and a translation 2 units up, followed by a reflection over the x -axis.

$h(x) = f(3x) + 2 \rightarrow g(x) = -h(x)$

$h(x) = 27x^3 + 18x^2 - 7 \rightarrow g(x) = -27x^3 - 18x^2 + 7$

14. $f(x) = 2x^5 - x^3 + x^2 + 4$; reflection over the y -axis and a vertical stretch by a factor of 3, followed by a translation 1 unit down.

$h(x) = 3f(-x) \rightarrow g(x) = h(x) + (-1)$

$h(x) = -6x^5 + 3x^3 + 3x^2 + 12 \rightarrow g(x) = -6x^5 + 3x^3 + 3x^2 + 11$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

