

CYU 2.1 Transformations of Quadratic Functions DAY ONE

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

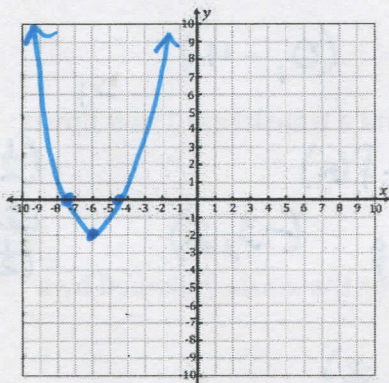
X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Describing Transformation	1 - 3	7 - 9	10 - 16
Graphing Quadratics	4, 5	1, 2, 3, 6	
Using your Calculator	1 - 3	7 - 9	
Identifying the Vertex	10 - 12		13 - 16

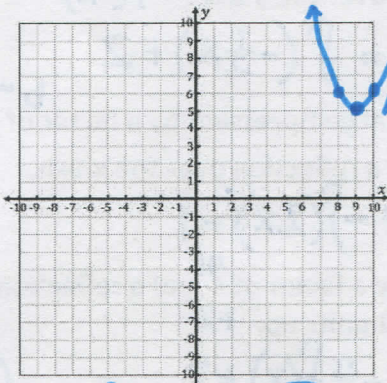
Describe the transformations of $f(x) = x^2$ represented by g . Then graph each function.

1. $g(x) = (x + 6)^2 - 2$



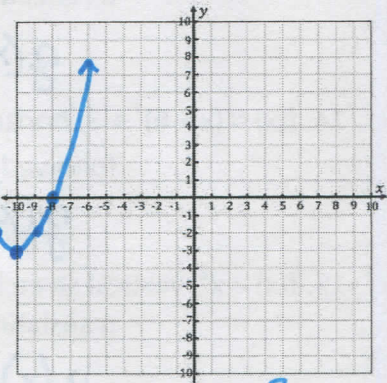
← 6u ↓ 2u

2. $g(x) = (x - 9)^2 + 5$



→ 9u ↑ 5u

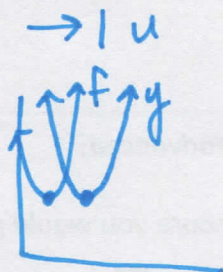
3. $g(x) = (x + 10)^2 - 3$



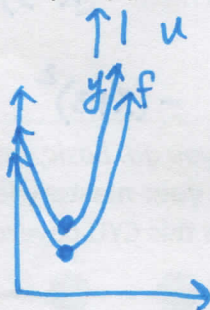
← 10u ↓ 3u

Sketch a graph that would show the transformation from graph f given the rule.

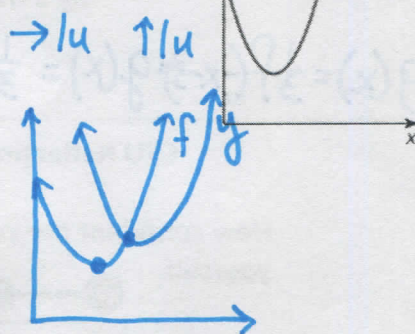
4. $y = f(x - 1)$



5. $y = f(x) + 1$

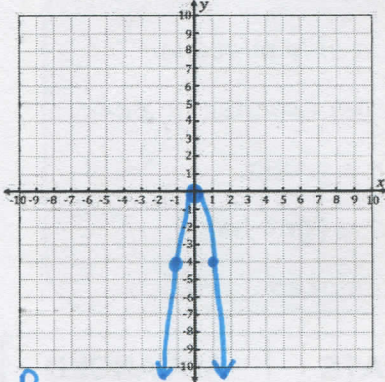


6. $y = f(x - 1) + 1$

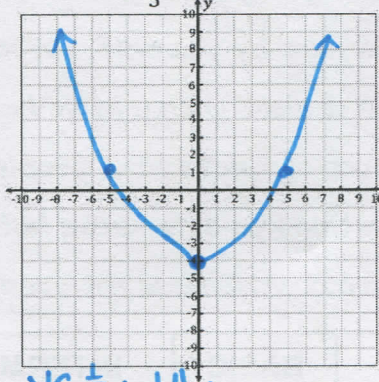


Describe the transformation of $f(x) = x^2$ (the quadratic parent function) represented by g . Then graph each function.

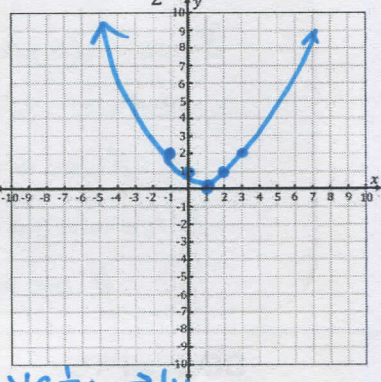
7. $g(x) = -(2x)^2$



8. $g(x) = \frac{1}{5}x^2 - 4$



9. $g(x) = \frac{1}{2}(x-1)^2$



HC $\frac{1}{2}$, R_x

VC $\frac{1}{5}$; $\downarrow 4u$

VC $\frac{1}{2}$; $\rightarrow 1u$

Describe the transformation of the graph of the parent quadratic function. Then identify the vertex.

10. $f(x) = -2x^2 + 5$

R_x ; VS 2; $\uparrow 5u$; (0,5)

11. $f(x) = \frac{1}{2}(x-1)^2$

$\rightarrow 1u$, VC $\frac{1}{2}$; (1,0)

12. $f(x) = 3(x+2)^2 + 1$

$\leftarrow 2u$; VS 3; $\uparrow 1u$; (-2,1)

Write the rule for $g(x)$ described by the transformations of the graph of $f(x)$. Then identify the vertex.

13. $f(x) = 8x^2 - 6$; horizontal stretch by a factor of 2 and a translation 2 units up, followed by a reflection over the y-axis.

$g(x) = f(-\frac{1}{2}x) + 2$

(0, -4)

14. $f(x) = (x+6)^2 + 3$; horizontal compression by a factor of $\frac{1}{2}$ and a translation 1 unit down, followed by a reflection over the x-axis.

$g(x) = -f(2x) - 1$

(-6, -2)

15. $f(x) = x^2$; vertical stretch by a factor of 4 and a reflection over the x-axis, followed by a translation 2 units up.

$g(x) = -4f(x) + 2$

(0, 2)

16. $f(x) = x^2$; vertical compression by a factor of $\frac{1}{3}$ and a reflection over the y-axis, followed by a translation 3 units right.

$g(x) = \frac{1}{3}f(-x-3)$

$g(x) = \frac{1}{3}(-x-3)^2$

$\frac{1}{3}x^2$
 $\frac{1}{3}(-x)^2$
 $\frac{1}{3}(-x-3)^2$

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.

