

Agilemind: Transforming Functions - Exploring

SAS3: Answer question 5

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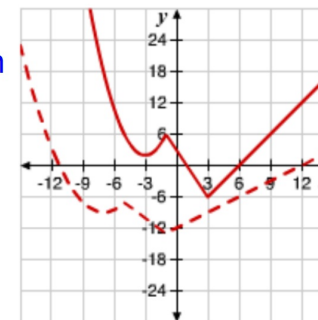
5. What values of a , h , and k will transform the graph of the parent function rule $f(x)$ (the solid red line) so that it matches the graph of the new function rule $af(x - h) + k$ (the dashed red line)?

It appears that the original graph was shifted to the left and down and underwent a vertical shrink.

1/2 as tall $a = 0.5$

4 units left $h = -4$

10 units down $k = -10$



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SAS3: Answer question 6

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Given a Parent Function $y = f(x)$

Describe the transformations performed on $f(x)$ to create the function $g(x)$ below?

$$g(x) = -7f(x - 5) + 8$$

$-7 \Rightarrow 7x$ taller & x -axis reflection

$x - 5 \Rightarrow$ subtracting inside $()$ means it moved right $\rightarrow 5$ right

$+8 \Rightarrow$ adding at the end means it moved up \Rightarrow up 8

Given this Parent Function: $f(x) = (x - 3)^2 + 1$
 Describe the transformations performed on $f(x)$
 to create the function $g(x)$ below?

$$g(x) = -3(x + 1)^2 - 5$$

$1 \rightarrow -3$ by multiplying by $-3 \Rightarrow a = -3$

$x - 3 \rightarrow x + 1$ by adding 4 which means it
 shifted 4 left $\Rightarrow h = -4$

$1 \rightarrow -5$ by subtracting 6 which means it
 shifted 6 down $\Rightarrow k = -6$

Given this Parent Function: $f(x) = -6f(x + 1) - 5$
 Describe the transformations performed on $f(x)$
 to create the function $g(x)$ below?

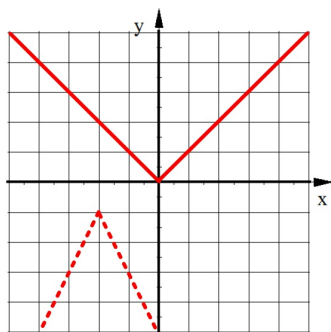
$$g(x) = 5f(x - 3) - 7$$

$-6 \rightarrow 5$ by multiply by $-5/6 \Rightarrow a = -5/6$

$x + 1 \rightarrow x - 3$ by adding 4 which means
 it shifted 4 Left $\Rightarrow h = -4$

$-5 \rightarrow -7$ by subtracting 2 which
 means it shifted 2 down $\Rightarrow k = -2$

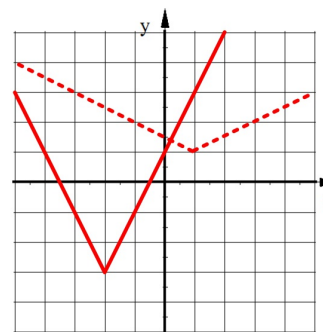
What values of a , h , and k will transform the original graph (solid lines)
 in to the new function (dashed line)
 $y = af(x-h)+k$



2 left $\rightarrow h = -2$
 1 down $\rightarrow k = -1$
 upside down
 & 2x taller $\rightarrow a = -2$

What is true about the values of a , h , and k will transform the original
 graph (solid lines) in to the new function (dashed line)

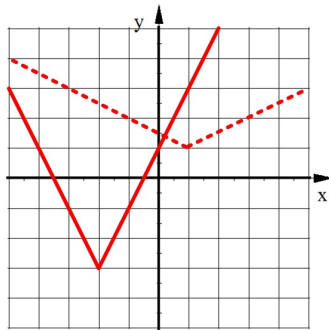
$$y = af(x-h)+k$$



a: The transformed function is shorter/wider
 than the original graph, so $0 < a < 1$

What is true about the values of a, h, and k will transform the original graph (solid lines) in to the new function (dashed line)

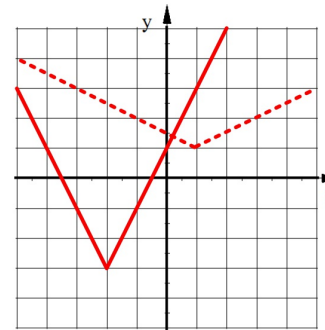
$$y = af(x-h)+k$$



h: The tranformed function is shifted to the right, so h is positive

What is true about the values of a, h, and k will transform the original graph (solid lines) in to the new function (dashed line)

$$y = af(x-h)+k$$



k: The tranformed function is shifted right, so k is Positive

Hwk #15

Agilemind - Topic 3 - Transforming functions

SAS3 - #'s 8, 9, 10a-b