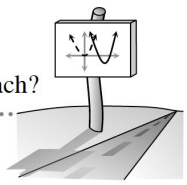
CW#___ Name:_____

2.1.3 How are some functions like a day at the beach?



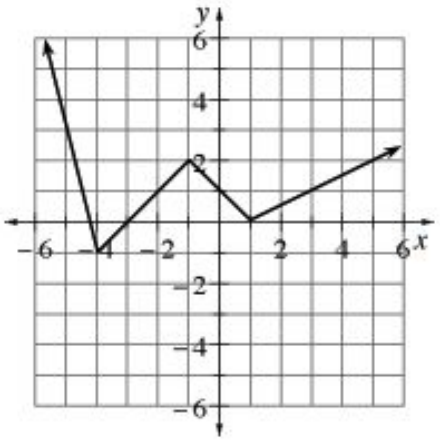
Transformations of Functions

Answer: They can shift like the sand and be as wavy as the surf.

#30

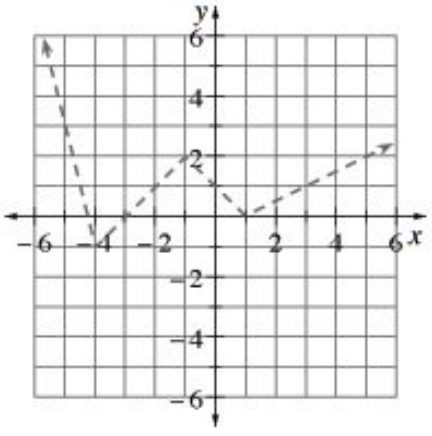
$y = f(x)$

x	$f(x)$
–5	
–4	
–3	
–2	
–1	
0	
1	
2	
3	
4	
5	



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

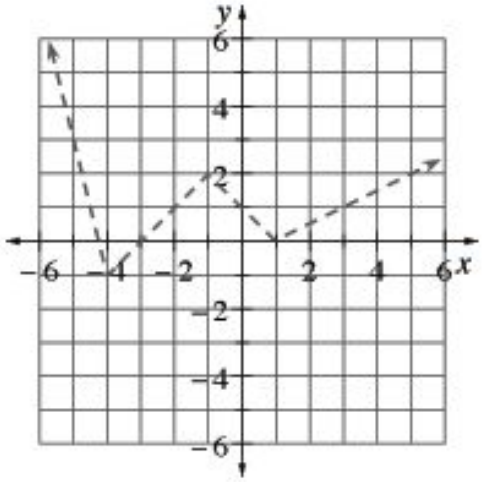
x	$f(x)$	$f(x) - 4$
–5		
–4		
–3		
–2		
–1		
0		–3
1		
2		
3		
4		
5		



#30 Continued

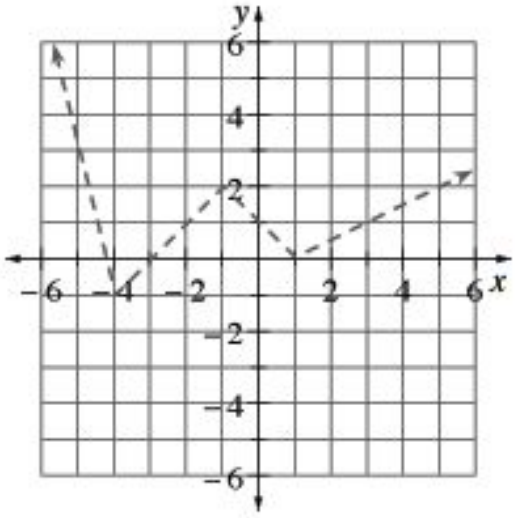
b. $y = f(x - 2)$

x	$x - 2$	$f(x - 2)$
–5		
–4		
–3		
–2		
–1		
0		
1		
2		
3	1	$f(1) = 0$
4		
5		



c. $y = 0.5f(x)$

x	$f(x)$	$0.5f(x)$
–5		1.5
–4		
–3		
–2		
–1		
0		
1		
2		
3		
4		
5		

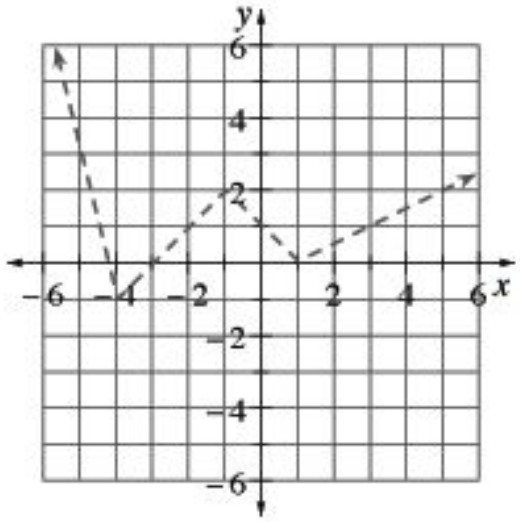


#30 continued

d. $y = f(2x)$

x	$2x$	$f(2x)$
–5		
–4		
–3		
–2		
–1		
0		
1		
2	4	$f(4) = 1.5$
3		
4		
5		

- 0.5		
0.5		

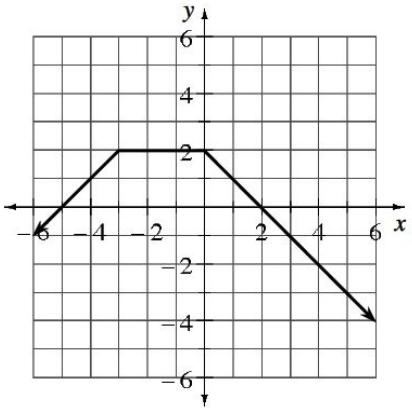


e. Given the equation of a function in **graphing form**, $y = af(b(x - h)) + k$, describe how each parameter, a, b, h, and k, affects the graph of $y = f(x)$.

#31 Now that you have summarized how various parameters can be used to transform a function, use the graph of $y = f(x)$ shown below to sketch each transformed function and then describe the transformation in words. Be sure to consider multiple representations and Order of Operations as you complete the transformations.

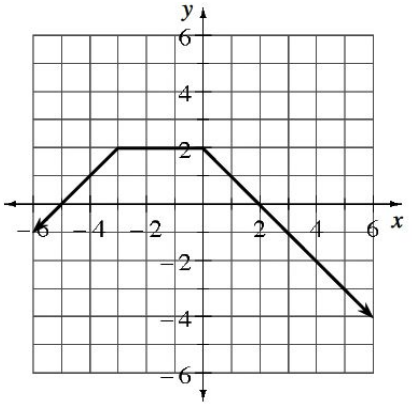
a. $y = f(x - 1) + 2$ Describe transformation:

Sketch transformation below:



b. $y = -2f(x) + 5$ Describe transformation:

Sketch transformation below:



c. $y = f(0.5x) - 1$ Describe transformation:

Sketch transformation below: