

# 4.1 NOTES APPLICATION

Describe the transformation (translation, scale, and/or reflection) that happens to the function  $f(x)$ .

6.  $-f(x) - 4$

Reflect over x-axis  
Translate Down 4

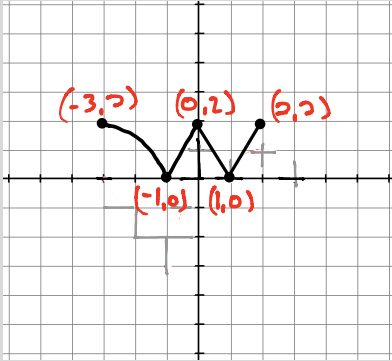
7.  $f(6-3x) + 1 = f(-3(x-2)) + 1$

Reflect over y-axis  
Shrink horizontally by  $\frac{1}{3}$   
Translate right 2 and up 1

8.  $-\frac{1}{2}f(\frac{1}{3}x - 6) + 5 = -\frac{1}{2}f(\frac{1}{3}(x-18)) + 5$

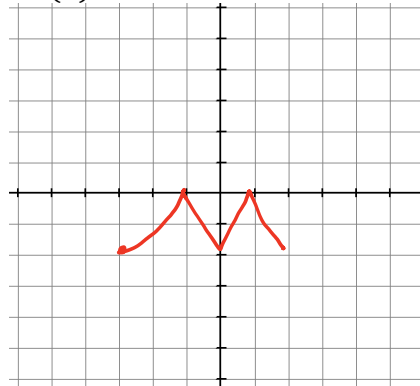
Reflect over x-axis  
Stretch horizontally by 3  
Shrink vertically by  $\frac{1}{2}$   
Translate right 18 and up 5

Given the  $h(x)$  is shown below:

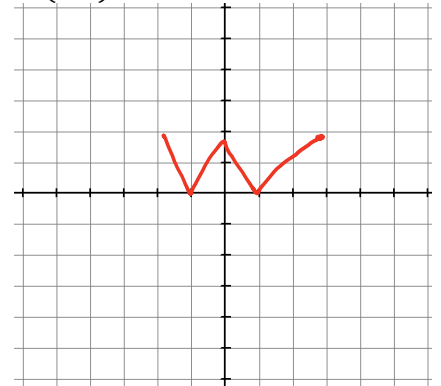


Sketch a graph of the following:

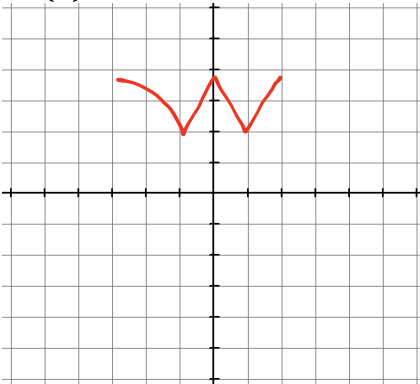
9.  $-h(x)$



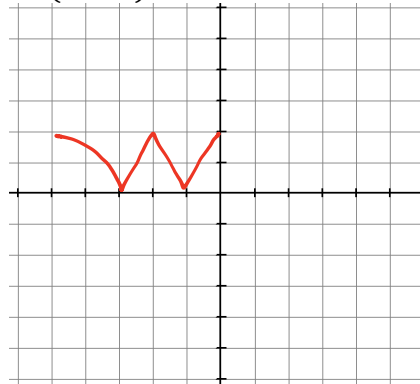
10.  $h(-x)$



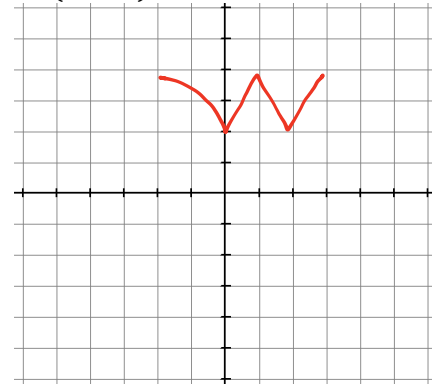
11.  $h(x) + 2$



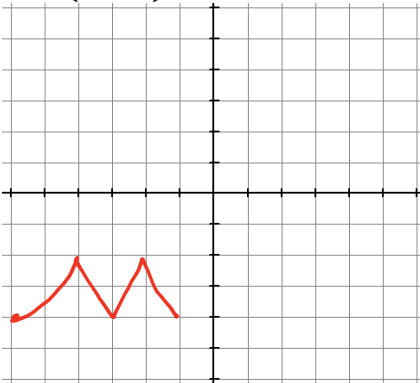
12.  $h(x + 2)$



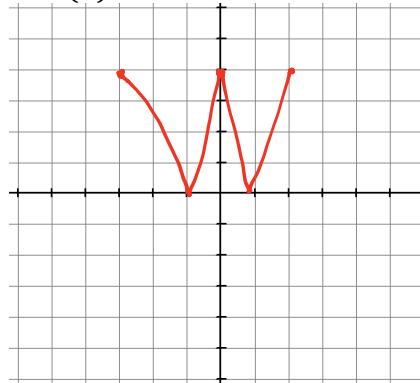
13.  $h(x - 1) + 2$



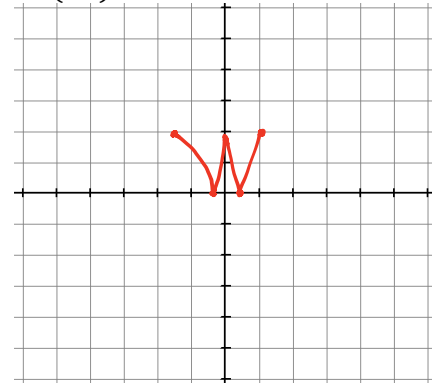
14.  $-h(x + 3) - 2$



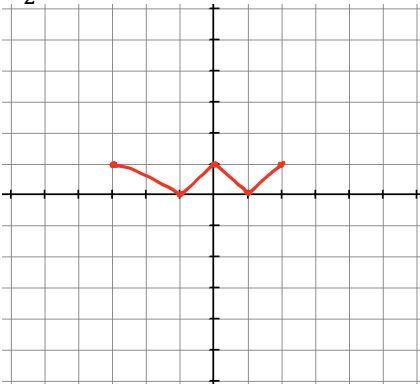
15.  $2h(x)$



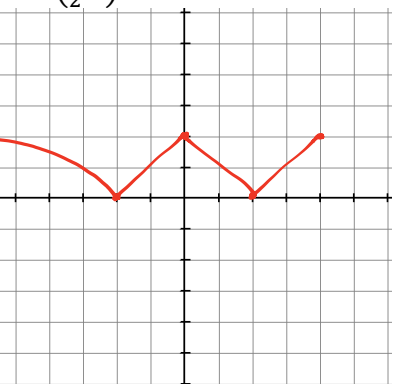
16.  $h(2x)$



17.  $\frac{1}{2}h(x)$



18.  $h(\frac{1}{2}x)$



19.  $-2h(x - 1) - 3$

