Exploratory Challenge

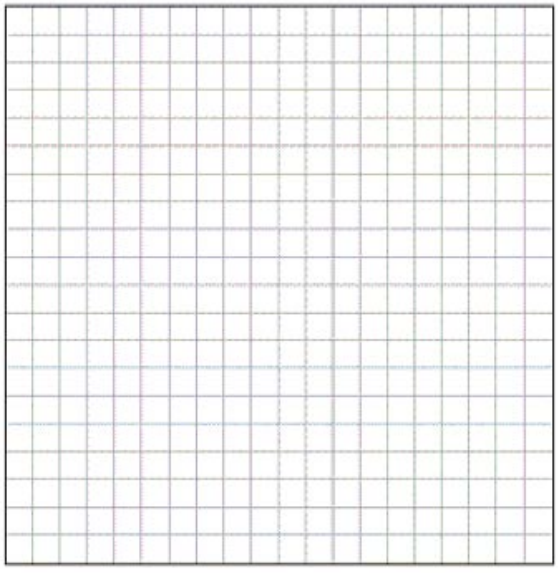
Complete the following to review Module 3 concepts:

a. Consider the function $f(x) = |x|$. Complete the table of values for $f(x)$. Then, graph the equation $y = f(x)$ on the coordinate plane provided for part (b).

x	$f(x)$
-4	
-2	
0	
2	
4	

b. Complete the following table of values for each transformation of the function f. Then, graph the equations $y = g(x)$, $y = h(x)$, $y = j(x)$, *and* $y = k(x)$ on the same coordinate plane as the graph of $y = f(x)$. Label each graph.

x	$f(x)$	$g(x) = 3f(x)$	$h(x) = 2f(x)$	$j(x) = 0.5f(x)$	$k(x) = -2f(x)$
-4					
-2					
0					
2					
4					



c. Describe how the graph of $y = kf(x)$ relates to the graph of $y = f(x)$ for each case.

i. $k > 1$

ii. $0 < k < 1$

iii. $k = -1$

iv. $-1 < k < 0$

v. $k < -1$

d. Describe the transformation of the "graph" of f that results in the "graphs" of g and h.

$f(x)$ $g(x)$ $h(x)$