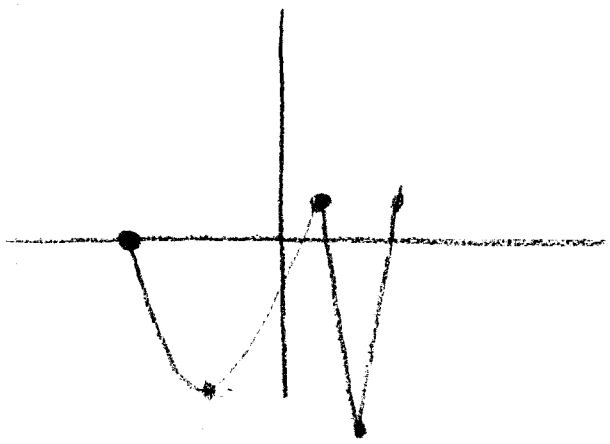
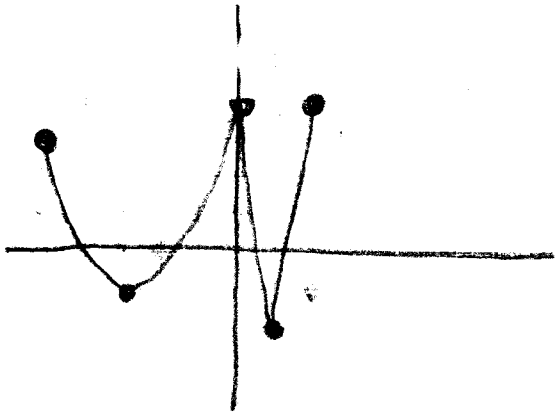
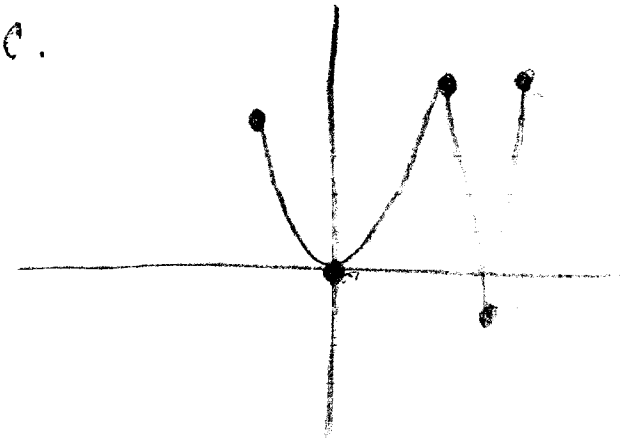
A.



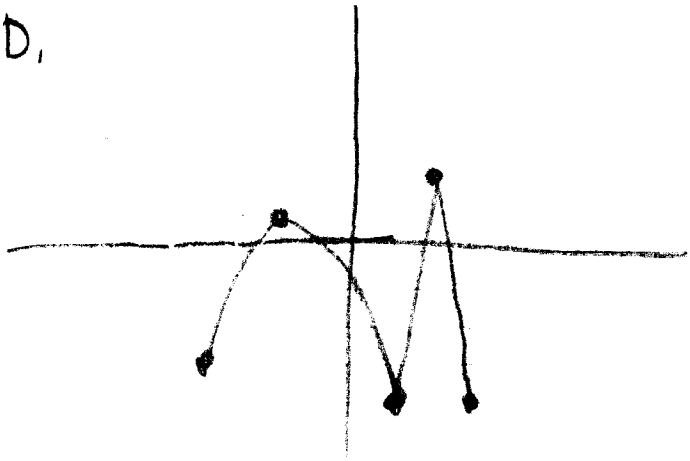
B.



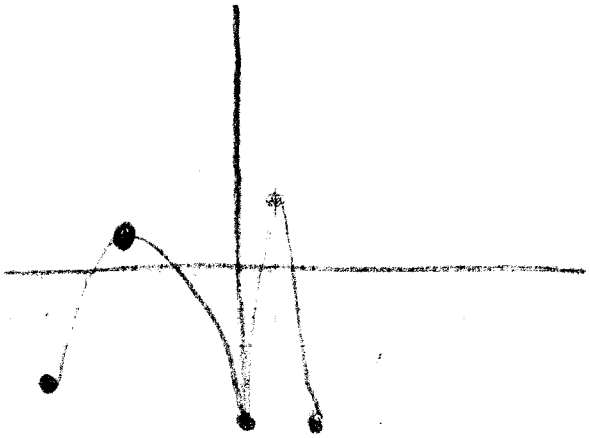
C.



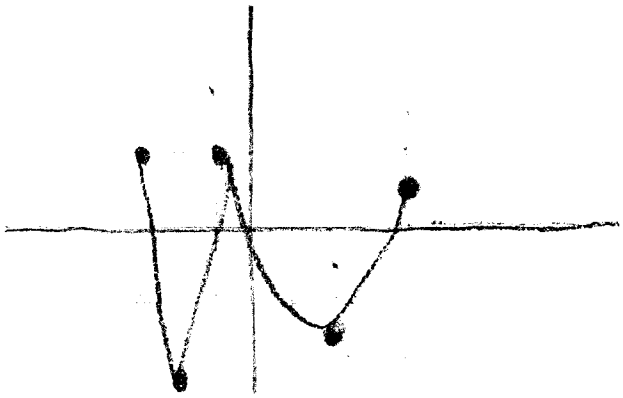
D.



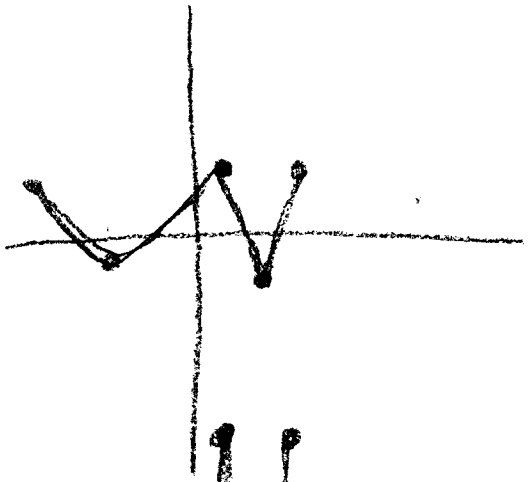
E.



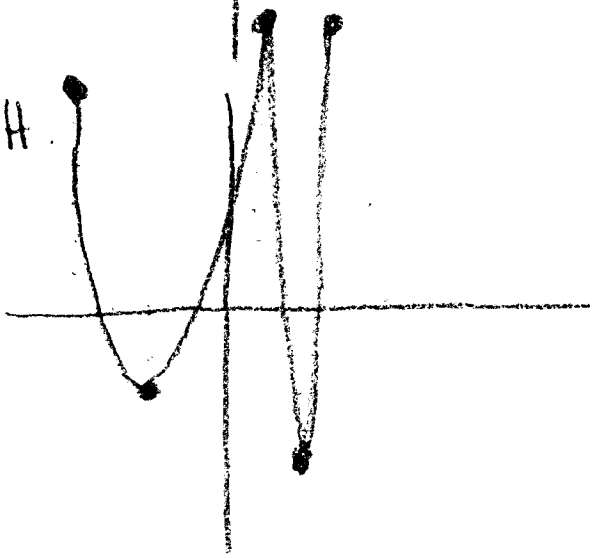
F.



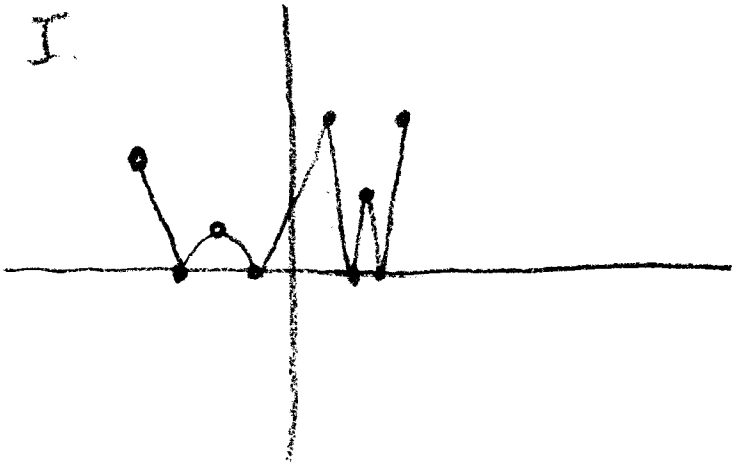
G.



H.



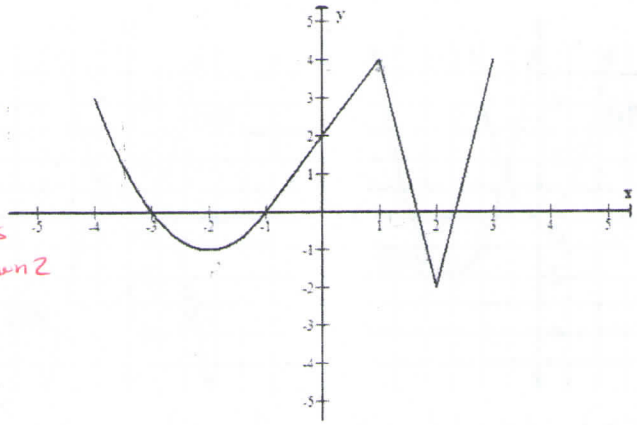
I.



KEY

ICM Functions Worksheet #2

1. The graph of f(x) is given. Graph:



-4	3
-2	-1
1	4
2	-2
3	4

A. f(x) - 3 down 3
B. f(x + 1) left 1
C. f(x - 2) + 1 right 2, up 1
D. -f(x) refl. over x-axis
E. -f(x + 1) left 1, reflect over x-axis
F. f(-x) - 2 reflect over y-axis, down 2
G. $\frac{1}{2}$f(x) vert. shrink * $\frac{1}{2}$
H. 2f(x) vert stretch * 2
I. |f(x)| partial refl. over x-axis

2. Given the function f(x) = 1/x, write the function whose graph of f(x) is:

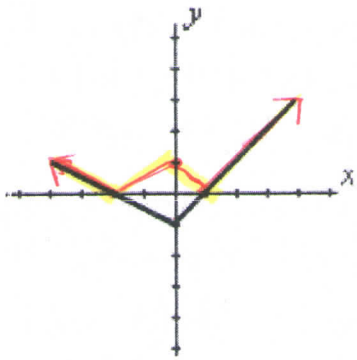
A. shifted 6 units to the left
B. reflected about the y-axis
C. reflected about the x-axis
D. shifted 5 units up
E. vertically stretched by a factor of 4
F. horizontally compressed by a factor of 1/3

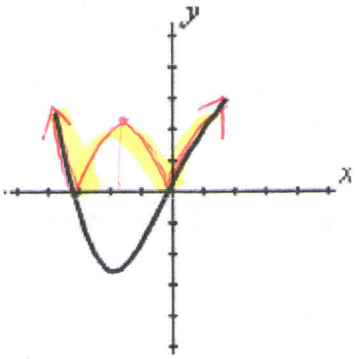
A. $f(x) = \frac{1}{x+6}$
B. $f(x) = \frac{1}{-x}$
C. $f(x) = -\frac{1}{x}$
D. $f(x) = \frac{1}{x} + 5$
E. $f(x) = \frac{4}{x}$
F. $f(x) = \frac{1}{3x}$

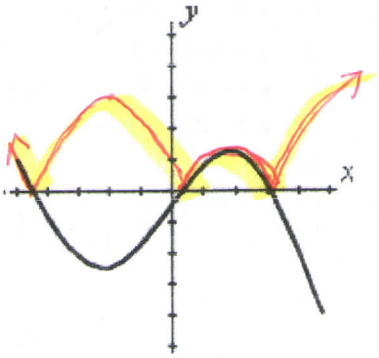
3. Write a function that is obtained after the following transformations are applied to y = |x|:
A. shift 9 units right, shift 4 units down
B. reflect over the y-axis, reflect over the x-axis, shift 2 units down
C. vertically stretch by a factor of 5, reflect over the x-axis, shift 8 units up

A. $y = |x-9| - 4$ B. $y = -|-x| - 2$ C. $y = -5|x| + 8$

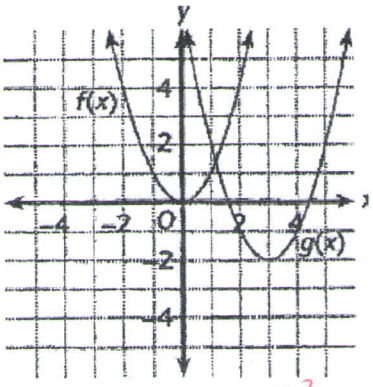
4. For each graph, sketch |f(x)|.



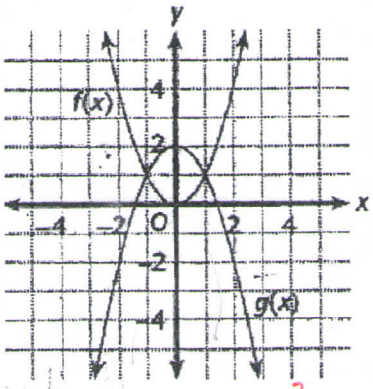




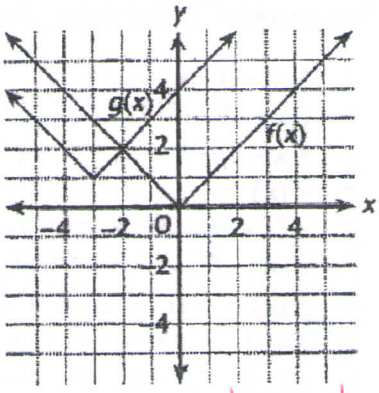
5. Use the graph of f(x) to help you write an equation for the graph of g(x).



$g(x) = (x-3)^2 - 2$

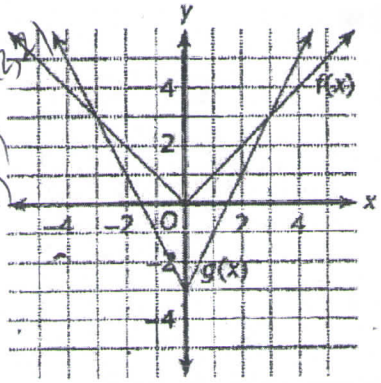


$g(x) = -x^2 + 2$

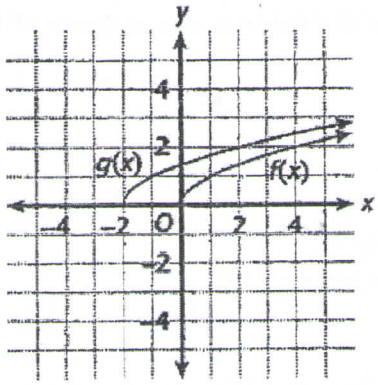


$g(x) = |x+3| + 1$

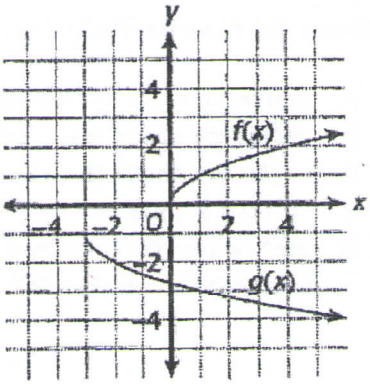
(1,1) (2,1) (1,-1) (0,0) (-3,0)



$g(x) = 2|x| - 3$



$g(x) = \sqrt{x+2}$



$g(x) = -\sqrt{x+3} - 1$

6. Identify the parent graph of each equation and describe the transformations from the parent graph.

A. $y = -7 + |x|$
B. $y = 2 + 5x^3$
C. $y = -\frac{1}{x} - 10$
D. $y = 4\sqrt{x} + 3$
E. $y = -x^2 + 4$
F. $y = -3(x-5)^2 - 2$
G. $y = -3^x + 8$
H. $y = 2\log(x) - 1$

A. $y = |x|$ shift down 7
B. $y = x^3$ vert. stretch by a factor of 5, Shift up 2
C. $y = \frac{1}{x}$ reflect over x-axis, shift down 10
D. $y = \sqrt{x}$ vert. stretch by a factor of 4, shift up 3
E. $y = x^2$ reflect over x-axis, shift up 4
F. $y = x^2$ shift right 5, vertical stretch by a factor of 3, reflect over x-axis, shift down 2
G. $y = 3^x$ reflect over x-axis, shift up 8
H. $y = \log x$ vert. stretch by a factor of 2, shift down 1