Name: _____ Period: _____

Review of PC 1-5, PC 1-6, PC 1-7, PC 1-8, and PC 1-9

1) Find and fully simplify the difference quotient for the function g below. $\frac{g(x+h)-g(x)}{h}$, $h \neq 0$

$$g(x) = -3x + 4$$

2) Find and fully simplify the difference quotient for the function f below. $\frac{f(x+h)-f(x)}{h}$, $h \neq 0$

$$f(x) = x^2 - 9x$$

3) Point $A(20, -4)$ is on the graph of $y = f(x)$. Determine the location of point A' after the transformation shown. Describe the transformation steps in detail.

a) $f\big((x+4)\big) - 3$

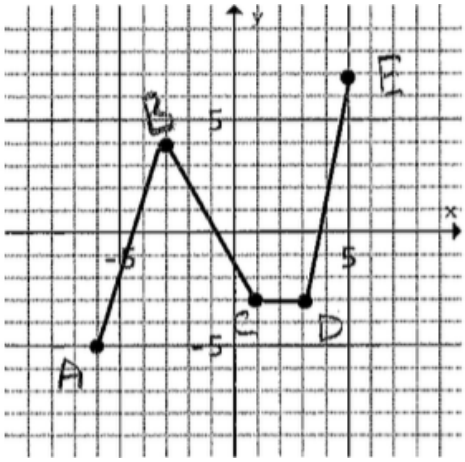
b) $-2f(4x)$

4) Point $A(-9,25)$ is on the graph of $y = f(x)$. Determine the location of point A' after the transformation shown. Describe the transformation steps in detail.

a) $\frac{1}{5}f\big(-3(x-7)\big) + 11$

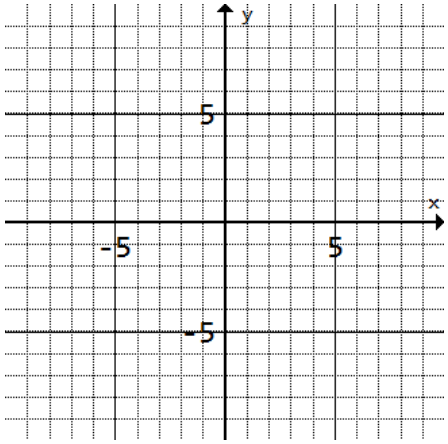
b) $5f\left(\frac{1}{3}(x+2)\right) - 8$

$h(x)$ is shown below



5) a)*Write the coordinate rule for the transformation:* $-\frac{1}{2}h(x) - 2$

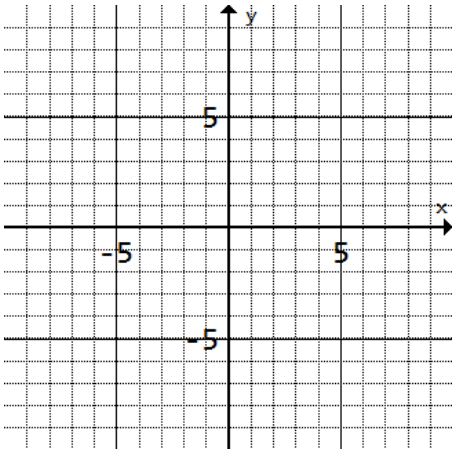
b) Graph it.



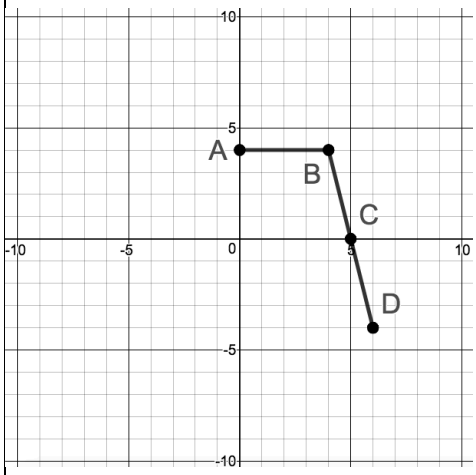
6) a) *Write the coordinate rule for the transformation:*

$h(-(x+3))$

b) *Graph it.*

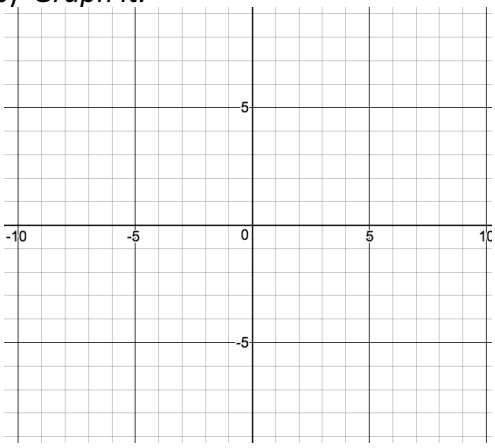


$f(x)$ is shown below



7) a)*Write the coordinate rule for the transformation:* $2f(x+4) - 1$

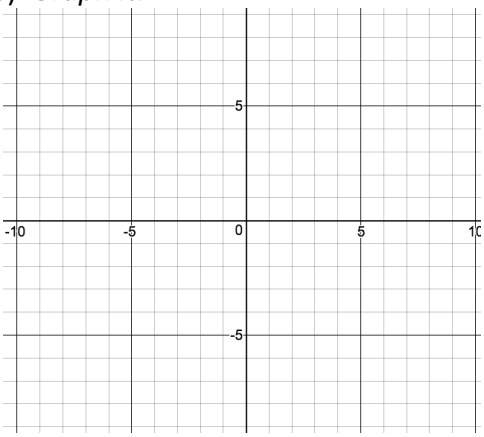
b) *Graph it.*



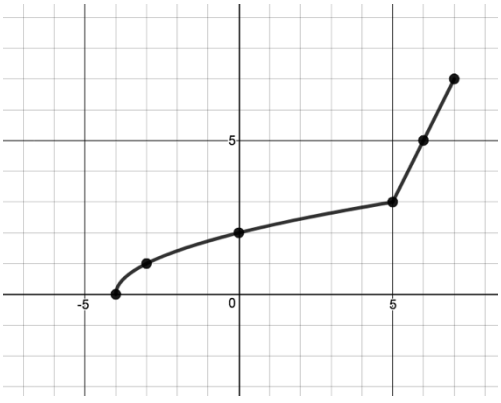
8) a) *Write the coordinate rule for the transformation:*

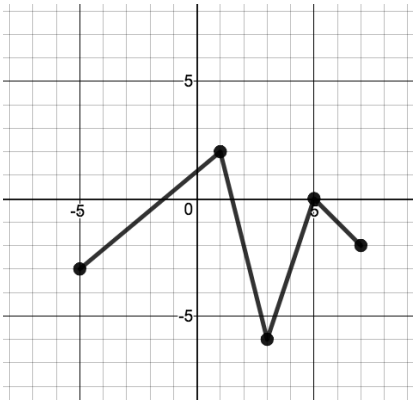
$$\frac{1}{2}f(2(x+3)) + 4$$

b) *Graph it.*



Given the graph, graph its **inverse** on the same coordinate plane.





6) Let $n(x) = \frac{4x-7}{8x+2}$ Algebraically determine $n^{-1}(x)$.

Domain of n:	Domain of $n^{-1}(x)$
Range of n:	Range of $n^{-1}(x)$

7) Verify the inverse of $n(x) = \frac{4x-7}{8x+2}$ by showing that $n(n^{-1}(x)) = x$. Showing work is a major portion of this problem.

7) Let $f(x) = x + 4$ and $g(x) = 3x^2 + 7x - 20$, find each of the following. Simplify all answers.

a) $(f - g)(11)$

b) $(fg)(x)$

d) $(f \circ g)(-2)$

e) $(g \circ f)(x)$

f) $f + g$

g) $\frac{f}{g}(3)$

8) Fill in the table below, then answer the questions using the table.

x	-5	-3	0	1	7
$f(x)$	10	2	-5	7	-3
$g(x)$	1	12	-3	-2	8
$f^{-1}(x)$					

a) $f(-3)$

b) $g(f(7))$

c) $g^{-1}(-3)$

d) $f^{-1}(-3)$

e) $f(g(0))$

f) $g(f(-5))$

g) $f^{-1}(f(-5))$

h) $g^{-1}(f(7))$

i) $f(f(0))$