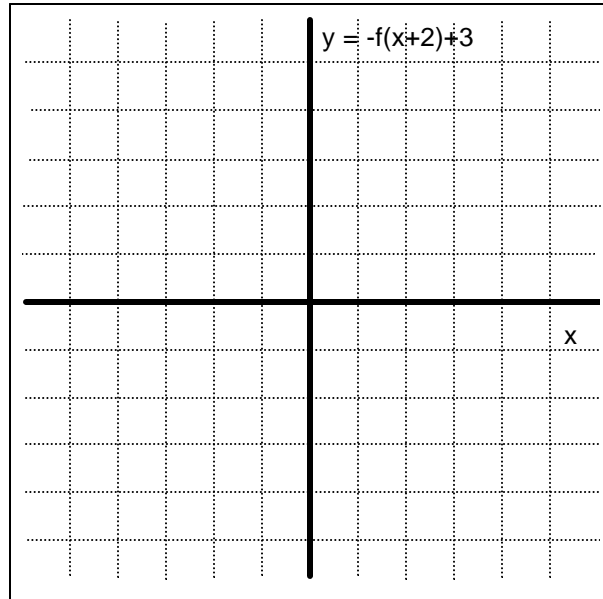
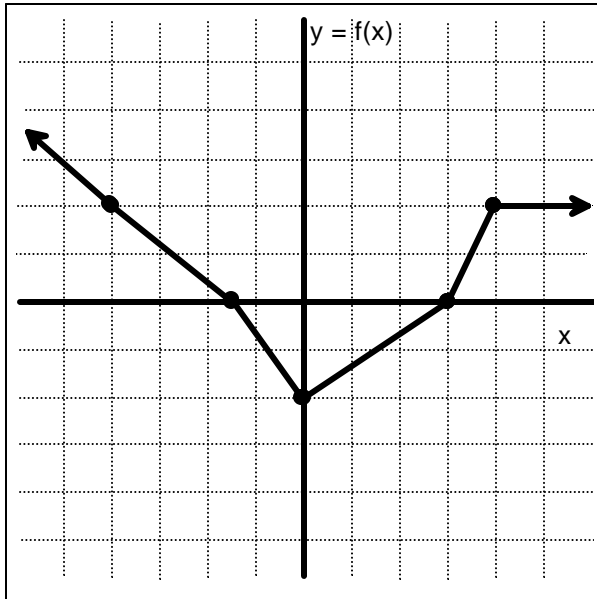
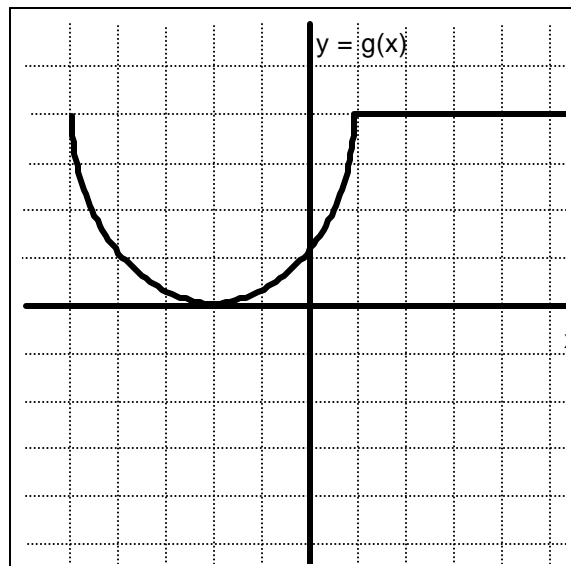
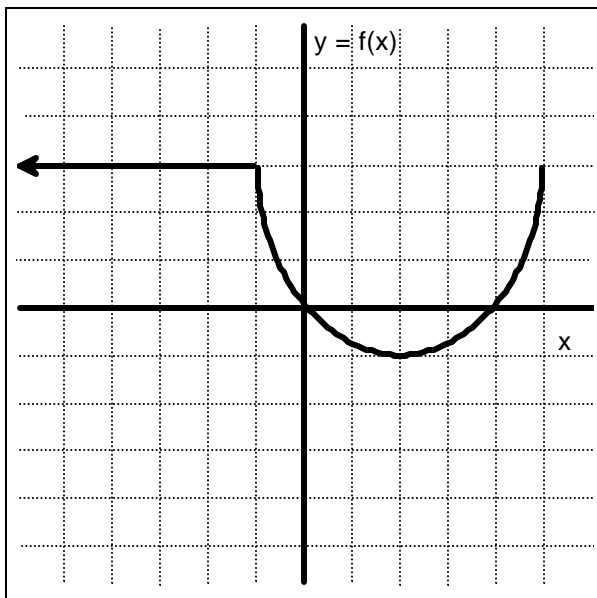


1. (5) Below is the graph of  $f(x)$ . Sketch the graph of  $-f(x-2)+3$ , making sure to select a few key points.



2. (6) The graph of  $f(x)$  is given at left. Give a formula for  $g(x)$  in terms of  $f(x)$  if the graph of  $g$  is on the right.



3. Let  $f(x) = \sqrt{4 - x^2}$ .

- a. (5) Write a function  $g(x)$  whose graph is the graph of  $f$  translated three units to the left and one unit down.
- b. (3) If the domain of  $f$  is  $-2 \leq x \leq 2$ , what is the domain of  $g$ ?
- c. (3) If the range of  $f$  is  $0 \leq y \leq 2$ , what is the range of  $g$ ?

4. (6) If  $H(x) = e^{2x-3}$ , find two functions  $f$  and  $g$  so that  $H(x) = f(g(x))$ .

5. (6) If  $f(x) = x^2 + 5$  and  $g(x) = \frac{1}{3-x}$ , find and simplify  $g(f(x))$ .

6. An employee's salary is given by  $S = f(t)$ , where  $S$  is the salary in dollars and  $t$  is the number of years experience.

- a. (5) If the CEO decides to change the employee's salary to  $S = f(t) - 5000$ , what has she decided to do? (Explain in words.)
- b. (5) If the CEO decides to change the employee's salary to  $S = f(t - 3)$ , what has she decided to do? (Explain in words.)

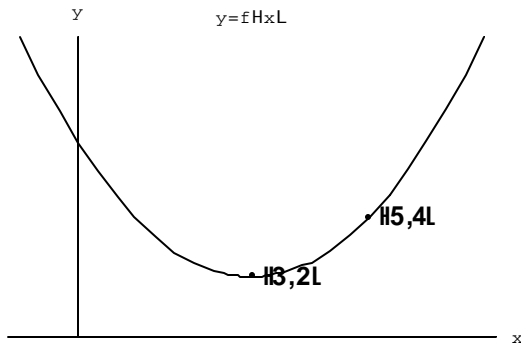
7. (10) A table of values for  $f(t)$  is given. If  $g(t) = f(t+2)$  and  $h(t) = -f(t) + 2$ , complete the tables for  $g$  and  $h$ .

$t$	-5	-4	-3	-2	-1	0	1	2	3	4	5
$f(t)$	2	7	9	5	0	-2	-5	-3	0	3	6

$t$	-3	-2	-1	0	1	2	3
$g(t)$							

$t$	-3	-2	-1	0	1	2	3
$h(t)$							

8. (8) What is the formula for  $f(x)$  if its graph is given below?



9. (6) Find the inverse of the function  $f(x) = e^{3x+1}$ .

10. (12) For the quadratic function  $f(x) = 2x^2 + 20x + 18$  find the following:

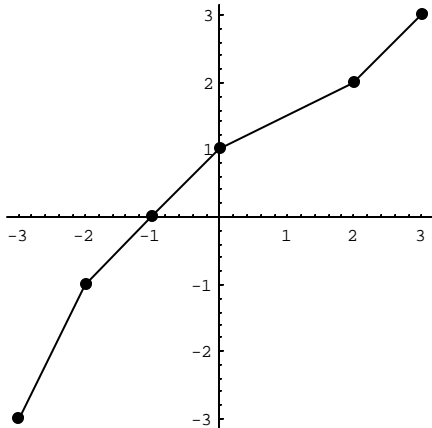
a. vertex \_\_\_\_\_ b. axis of symmetry \_\_\_\_\_

c.  $x$  intercept(s) \_\_\_\_\_ d.  $y$  intercept \_\_\_\_\_

11. (9) Given the graph of  $h(t)$  below, answer the following.

a. Evaluate  $h^{-1}(0)$ . \_\_\_\_\_ b. Evaluate  $h^{-1}(-2)$ . \_\_\_\_\_

c. Sketch the graph of  $h^{-1}(t)$ . Use the same set of axes.



12. (6) Find the inverse of the function  $g(x) = (x - 2)^3 + 4$ .

13. (5) The table contains values for the functions  $p$  and  $q$ . Fill in the table for  $r(x) = p(q(x))$ .

$x$	1	2	3	4	5
$p(x)$	4	3	5	2	3
$q(x)$	3	4	0	2	1
$r(x)$					