

4. [12 points]

Figure 1 below gives some data for an invertible function  $f$  and Figure 2 shows the entire graph of a function  $g$ . Use this information to answer the questions below.

$x$	0	1	2	3	4	5	6
$f(x)$	2	6	5	4	1	3	7

Figure 1

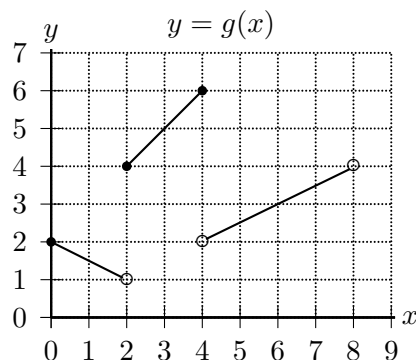


Figure 2

a. [3 points] What is the domain of  $g$ ? What is the domain of  $g^{-1}$ ?  
 (Use either inequalities or interval notation to give your answers.)

Domain of  $g$ : \_\_\_\_\_

Domain of  $g^{-1}$ : \_\_\_\_\_

b. [4 points]

i. Evaluate  $3f(2) + 1$ .

Answer: \_\_\_\_\_

ii. Evaluate  $g(g(4))$ .

Answer: \_\_\_\_\_

iii. Evaluate  $g(f(1) - 1)$ .

Answer: \_\_\_\_\_

iv. Evaluate  $f^{-1}(g^{-1}(3))$ .

Answer: \_\_\_\_\_

c. [2 points] Find the average rate of change of  $f(x)$  between  $x = 2$  and  $x = 5$ .

Answer: \_\_\_\_\_

d. [3 points] Suppose  $h(x) = 3 + 4x$ . What transformations must be performed on the graph of  $y = g(x)$  to obtain the graph of  $y = h(g(x))$ ?  
 (Be specific and give the transformations in the appropriate order.)