MATH 140: Week-In-Review 7 (5.1)

Problem 1 *For each of the following, draw a number line representing the given information, and then write the equivalent interval notation.*

(a) $x \geq 2$

(b) $x < 96$

(c) $x \neq -8$

(d) $4 < x \leq 100$

(e) $x \geq -10$ *and* $x \neq 5$ *and* $x \neq 0$

(f) $x > -25$ *and* $x \leq 50$ *and* $x \neq 3$

(g) $x < 0$ *or* $x \geq 1$

Problem 2 *State the inputs and outputs of the given relation. Then, determine whether or not the relation is a function.*

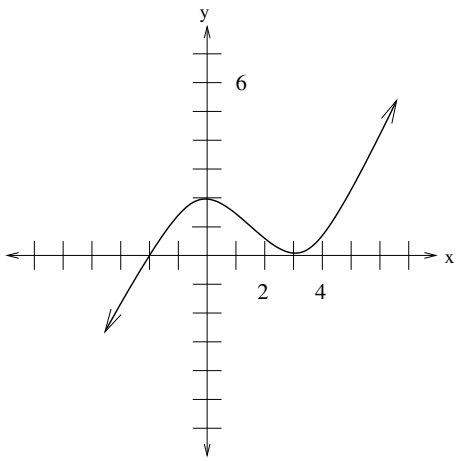
(a) $\{(1,8),(2,7),(3,-1),(-4,5),(0,9)\}$

(b) $\{(-1,0),(2,3),(3,5),(5,0),(8,-2)\}$

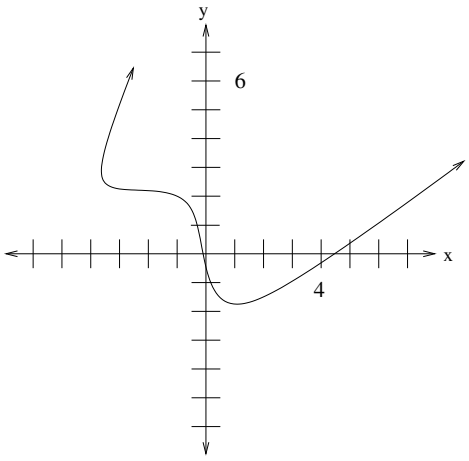
(c) $\{(-2,4),(-1,0),(1,4),(2,6),(-2,5)\}$

Problem 3 *Determine whether or not each of the following graphs represents a function. If the graph is that of a function, write the domain and range of the function, using interval notation.*

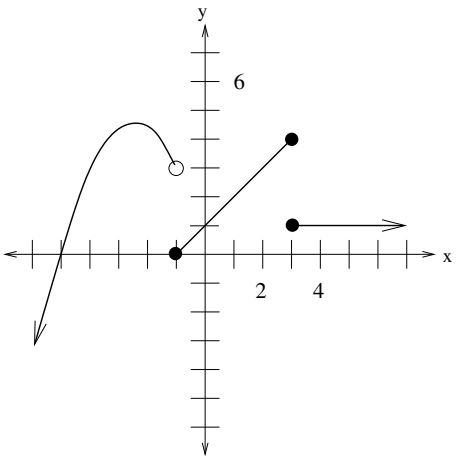
(a)



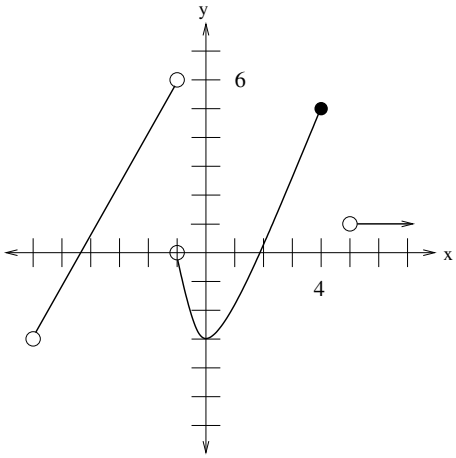
(b)



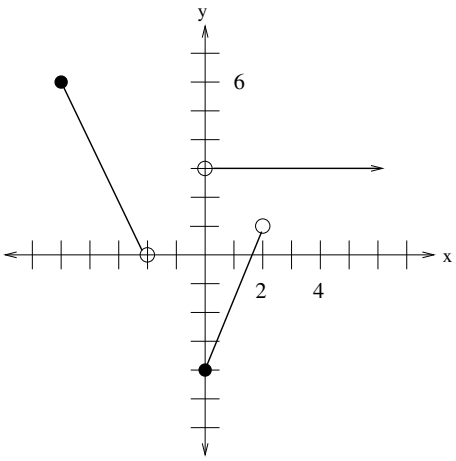
(c)



(d)



(e)



Problem 4

(a) Use the function notation $h(x) = y$ to represent the function information given in each row of the table below.

Domain	Range
1	2
3	5
6	7

(b) Use the function notation $m(x) = y$ to represent the function information given in each row of the table below.

Domain	Range
-3	-8
-1	0
0	4

Problem 5 *If $g(x) = 7x - 5$, evaluate and fully expand and simplify each of the following, using proper mathematical notation.*

(a) $g(0)$

(b) $g(3)$

(c) $g(-3)$

(d) $g(a)$

(e) $3g(a)$

(f) $g(3a)$

(g) $g(a) + 2$

(h) $g(a + 2)$

(i) $g(a) + g(2)$

Problem 6 *If $k(x) = 5x^2 - 3x + 1$, evaluate and fully expand and simplify each of the following, using proper mathematical notation.*

(a) $k(0)$

(b) $k(-2)$

(c) $k(\sqrt{3})$

(d) $k(a)$

$$k(x) = 5x^2 - 3x + 1$$

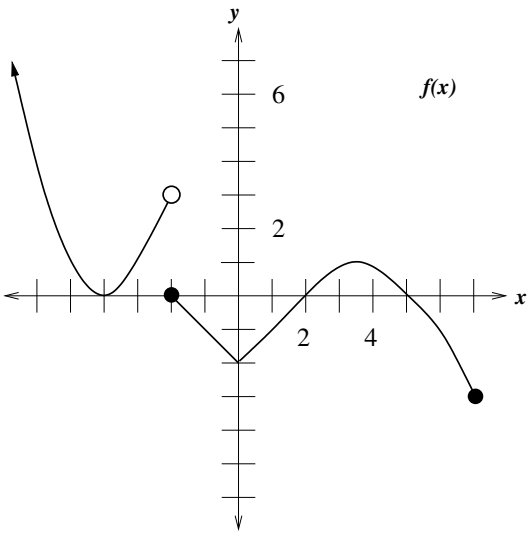
(e) $k(3a + 1)$

(f) $k(x + h)$

(g) $k(x + h) - k(x)$

Problem 7 *Given the graph of the function $f(x)$ below to the right, determine the following:*

(a) Domain of $f(x)$:



(b) Range of $f(x)$:

(c) $f(1)$

(d) $f(-2)$

(e) Where $f(x) = -1$

(f) Where $f(x) = 0$