

## Section 2.1 Features of a Function

### Problem 1.

- (a)  $h$  and  $j$
- (b)  $g$  and  $i$
- (c)  $h$  and  $i$
- (d)  $g$  and  $j$
- (e)  $f$ ,  $h$ , and  $i$

### Problem 4.

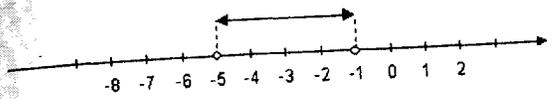
- (a)  $(-3, 7)$
- (b)  $[-6, 0]$
- (c)  $[-6, -2], [2, 5], [9, 10]$
- (d)  $[-2, 0]$
- (e)  $[2, 5], [9, 10]$

### Problem 6.

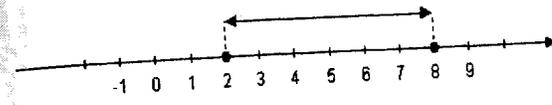
- (a)  $f(x) = e^x$
- (b)  $f(x) = -(x-1)^2 + 5$
- (c)  $f(x) = (x+1)^2 - 5$
- (d)  $f(x) = -(x-1)^2 - 1$
- (e)  $f(x) = e^{-x}$
- (f)  $f(x) = -(x+1)^2 + 5$
- (g)  $f(x) = (x-1)^2 - 5$
- (h)  $f(x) = -e^x$

Problem 4.

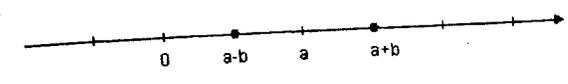
(a)



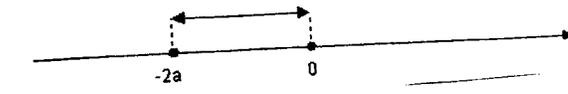
(b)



(c)



(d)



Problem 10.

$x = -4, -2, 2$

$x = -3, -1, 3, 6$

$x \in (-\infty, -4) \cup [-3, -1) \cup (2, 3) \cup (3, 6)$

Problem 13.

(a) Even:  $f(-x) = (-x)^2 + 3(-x)^4 = x^2 + 3x^4 = f(x)$ .

(b) Even:  $g(-x) = \frac{1}{f(-x)} = \frac{1}{f(x)} = g(x)$ .

Problem 15.

(a) Odd:  $f(-x) = \frac{(-x)^2 - 1}{(-x)^3} = \frac{x^2 - 1}{-x^3} = -\frac{x^2 - 1}{x^3} = -f(x)$ .

(b) Even:  $g(-x) = \frac{(-x)^2 - 1}{(-x)^4 + 1} = \frac{x^2 - 1}{x^4 + 1} = g(x)$ .