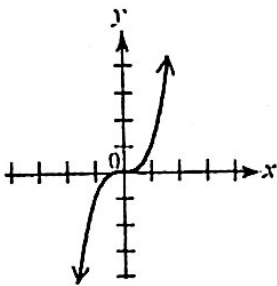


## Increasing & Decreasing Functions

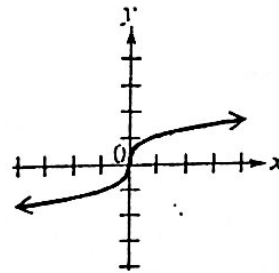
Determine the intervals of the domain over which the function is a) increasing, b) decreasing, and c) constant. Then state the domain and range.

1.



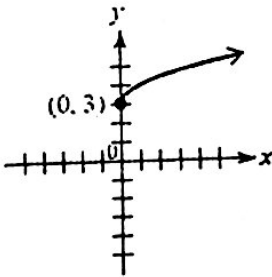
Domain:  $(-\infty, \infty)$   
 Range:  $(-\infty, \infty)$   
 Increase:  $(-\infty, \infty)$   
 Decrease: None  
 Constant: None

2.



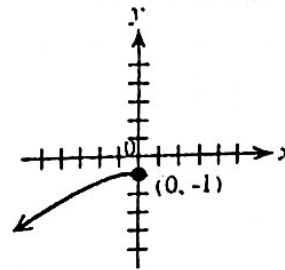
Domain:  $(-\infty, \infty)$   
 Range:  $(-\infty, \infty)$   
 Increase:  $(-\infty, \infty)$   
 Decrease: None  
 Constant: None

3.



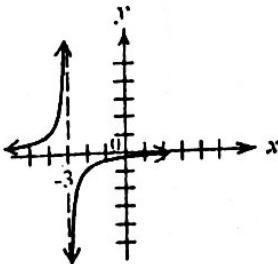
Domain:  $[0, \infty)$   
 Range:  $[3, \infty)$   
 Increase:  $[0, \infty)$   
 Decrease: None  
 Constant: None

4.



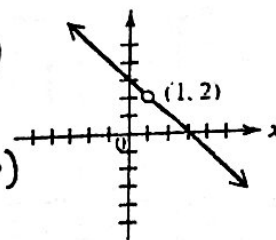
Domain:  $(-\infty, 0]$   
 Range:  $(-\infty, -1]$   
 Increase:  $(-\infty, 0]$   
 Decrease: None  
 Constant: None

5.



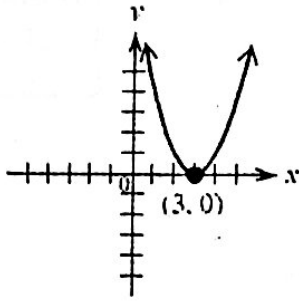
Domain:  $(-\infty, -3) \cup (-3, \infty)$   
 Range:  $(-\infty, 0) \cup (0, \infty)$   
 Increase:  $(-\infty, -3) \cup (-3, \infty)$   
 Decrease: None  
 Constant: None

6.



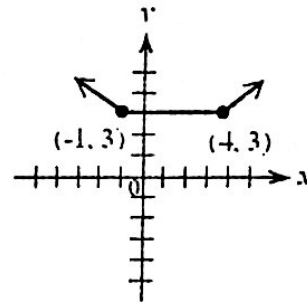
Domain:  $(-\infty, 1) \cup (1, \infty)$   
 Range:  $(-\infty, 2) \cup (2, \infty)$   
 Increase: None  
 Decrease:  $(-\infty, 1) \cup (1, \infty)$   
 Constant: None

7.



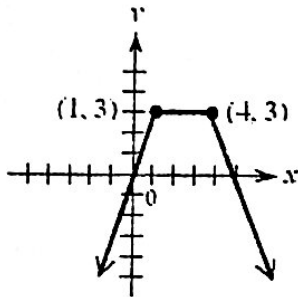
Domain:  $(-\infty, \infty)$   
 Range:  $(0, \infty)$   
 Increase:  $[3, \infty)$   
 Decrease:  $(-\infty, 3]$   
 Constant: None

8.



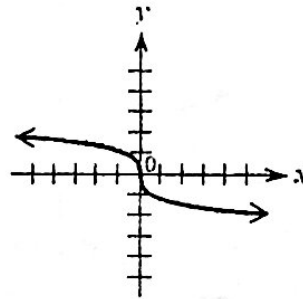
Domain:  $(-\infty, \infty)$   
 Range:  $[3, \infty)$   
 Increase:  $[4, \infty)$   
 Decrease:  $(-\infty, -1]$   
 Constant:  $[-1, 4]$

9.



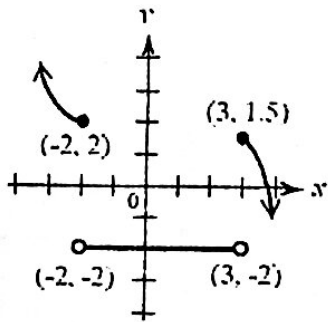
Domain:  $(-\infty, \infty)$   
 Range:  $(-\infty, 3]$   
 Increase:  $(-\infty, 1]$   
 Decrease:  $[4, \infty)$   
 Constant:  $[1, 4]$

10.



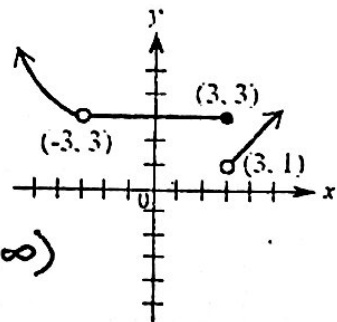
Domain:  $(-\infty, \infty)$   
 Range:  $(-\infty, \infty)$   
 Increase: None  
 Decrease:  $(-\infty, \infty)$   
 Constant: None

11.



Domain:  $(-\infty, \infty)$   
 Range:  $(-\infty, 1.5] \cup [2, \infty)$   
 Increase: None  
 Decrease:  $(-\infty, -2] \cup [3, \infty)$   
 Constant:  $(-2, 3)$

12.



Domain:  $(-\infty, -3) \cup (-3, \infty)$   
 Range:  $(1, \infty)$   
 Increase:  $(3, \infty)$   
 Decrease:  $(-\infty, -3)$   
 Constant:  $(-3, 3]$