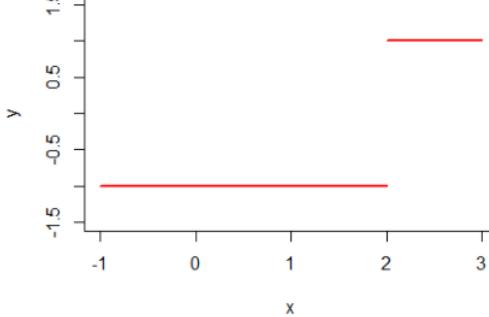
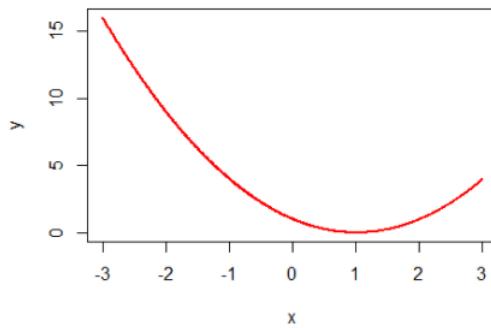


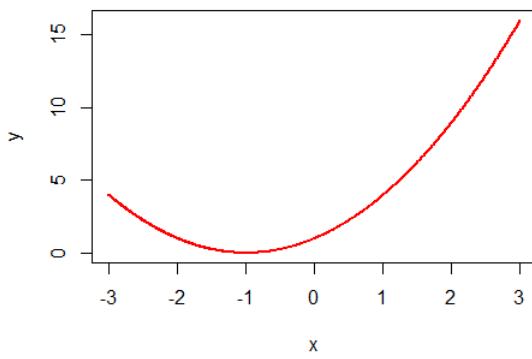
## Lecture 2 - Practice Questions

1. What is the domain of the real-valued function  $f(x) = \sqrt{2x}$ ?
  - A.  $\mathbb{R}_{>0}$
  - B.  $\mathbb{R}_{\geq 0}$
  - C.  $\mathbb{R}_{<0}$
  - D.  $\mathbb{R}_{\leq 0}$
2. Which of the following  $f$  is not a function with domain  $\mathbb{R}$ ?
  - A.  $f(x) = \sqrt{x}$
  - B.  $f(x) = 3x + 4$
  - C.  $f(x) = -x^2$
  - D.  $f(x) = 3x^3 - 2x$
3. What's the domain of the real-valued function  $f(x) = \ln(-x)$ ?
  - A.  $\mathbb{R}$
  - B.  $\mathbb{R}_{>0}$
  - C.  $\mathbb{R}_{\neq 0}$
  - D.  $\mathbb{R}_{<0}$
4. Consider the function plotted below. At which point is it not continuous?

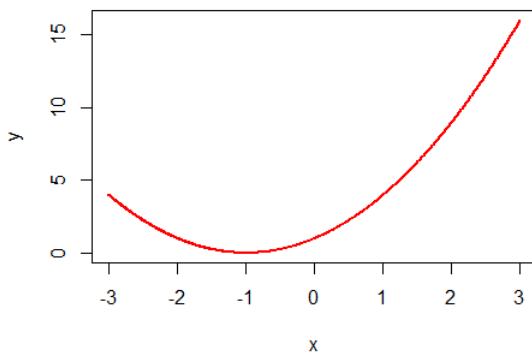
The graph shows a piecewise function  $f(x)$  plotted on a Cartesian coordinate system. The x-axis is labeled 'x' and ranges from -1 to 3. The y-axis is labeled 'y' and ranges from -1.5 to 1.5. The function consists of three segments:
  - A horizontal red line segment at  $y = -0.5$  for  $x < 0$ .
  - A horizontal red line segment at  $y = 0.5$  for  $0 \leq x < 2$ .
  - A horizontal red line segment at  $y = 1.0$  for  $x \geq 2$ .The function is continuous at  $x = 0$  and  $x = 2$ , but there is a jump discontinuity at  $x = 2$  where the value increases from 0.5 to 1.0.
- A. 0  
B. 0.5  
C. 1  
D. 2
5. Consider the function plotted below. Which point is a local minimum?



- A. 0  
B. 1  
C. 2  
D. 3
6. Consider the function  $f : [-3, 3] \rightarrow \mathbb{R}$  plotted below. Which point is the global maximum?



- A. -3  
B. -1  
C. 0  
D. 3
7. Consider the function  $f : [-3, 3] \rightarrow \mathbb{R}$  plotted below. Which point is the global minimum?



- A. -3

- B. -1
  - C. 0
  - D. 3
8. Consider the function  $f : [-1, 1] \rightarrow \mathbb{R}$ ,  $f(x) = x^2$ . Choose the correct statement:
- A. The function is unbounded
  - B. The function is not continuous
  - C. The function has one local maximum
  - D. None of the others

Question	Correct Answer
1	B
2	A
3	D
4	D
5	B
6	D
7	B
8	D