Algebra 1

Topic: Linear Functions

Instructions

Solve the following problems. Use the graphs and tables where necessary. Show all work clearly.

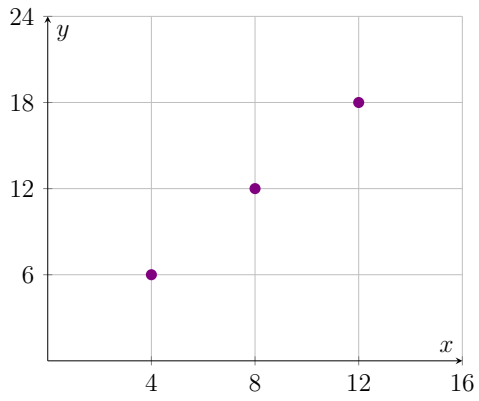
Practice Problems

1. Complete the table for the linear equation $y = 2x + 3$:

x	-2	-1	0	1	2
y					

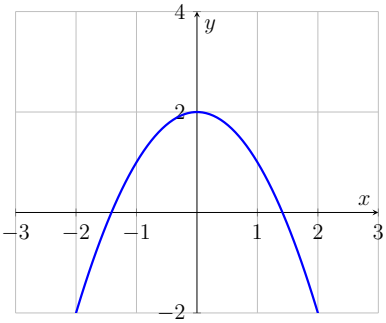
2. Find the domain of the function represented by the graph. Determine whether the domain is **discrete** or **continuous**. Explain.

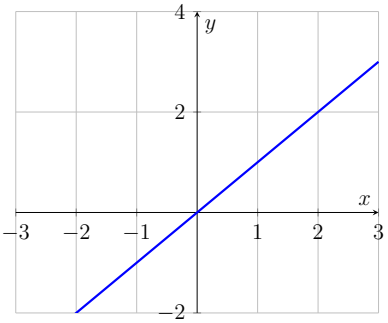
a.

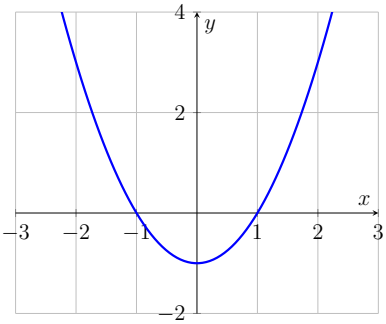


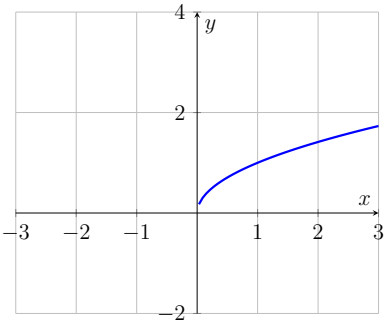
b.

3. Determine whether the graph represents a **linear** or **nonlinear** function. Explain.

i. 

ii. 

iii. 

iv. 

4. Determine whether the table represents a **linear** or **nonlinear** function. Explain.

x	1	2	3	4
y	5	10	15	20

x	5	7	9	11
y	-9	-3	-1	3

5. In Exercises 17–24, determine whether the equation represents a **linear** or **nonlinear** function. Explain.

   i. $y = x^2 + 13$

   ii. $y = 7 - 3x$

   iii. $y = \sqrt[3]{8 - x}$

   iv. $y = 4x(8 - x)$

   v. $2 + \frac{1}{y} = 3x + 4$

   vi. $y - x = 2x - \frac{2}{3}y$

   vii. $18x - 2y = 26$

   viii. $2x + 3y = 9xy$

Multiple Choice Questions

1. What is the slope of the line represented by the equation $3x - 4y = 12$?

   a. $-\frac{3}{4}$

   b. $\frac{3}{4}$

   c. $-\frac{4}{3}$

   d. $\frac{4}{3}$

2. Which of the following is the slope of the line passing through the points $(1, 2)$ and $(3, 6)$?

a. 2

b. 4

c. $\frac{1}{2}$

d. -2

3. A line has a slope of 0. Which of the following equations represents the line?

   a. $y = 5$

   b. $x = 5$

   c. $y = x$

   d. $y = -x + 2$

4. The slope of a line parallel to $y = -3x + 1$ is:

   a. 3

   b. -3

   c. 0

   d. $\frac{1}{3}$