

# Introduction to Linear and Nonlinear Functions



## Overview of problems



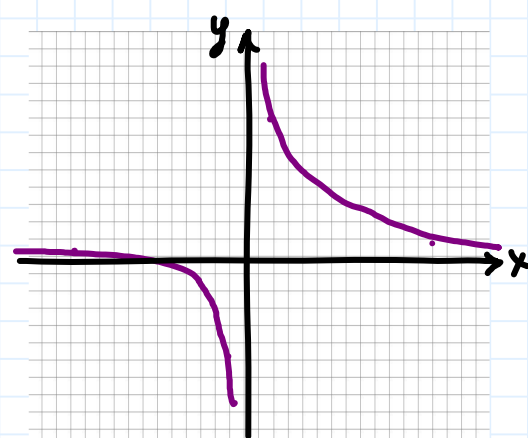
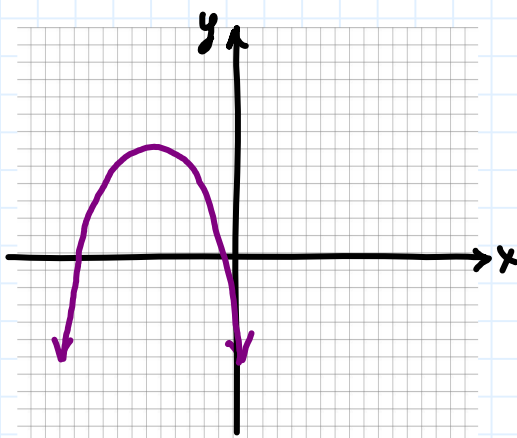
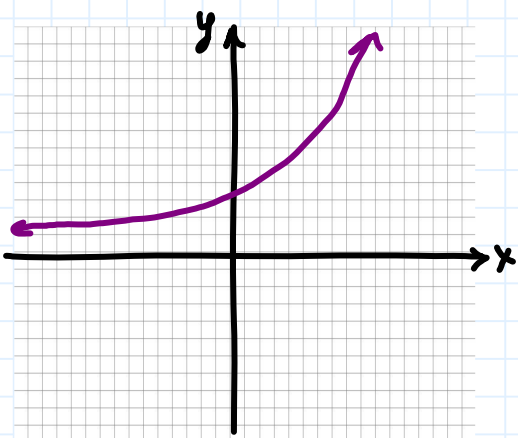
Example Set: A

Match the graph with an equation. Identify what type of function each equation models.

$$f(x) = -(x+6)^2 + 7$$

$$f(x) = \frac{x+8}{x}$$

$$f(x) = 3^x$$





## Example Set: B

Determine if the point  $(3, 6)$  is on the graph of the function

$$f(x) = 4x - 1$$

$$f(x) = 2x^2 - 12$$

$$f(x) = 3^x$$

$$f(x) = \frac{4x + 12}{x + 1}$$



## Example Set: C

*Find an equation for the linear function*

$$f(1) = 3, \quad f(4) = 12$$

$$f(-2) = 6, \quad f(5) = -10$$

$$f(3) = -2, \quad f(0) = 7$$

# Introduction to Linear and Nonlinear Functions



## Overview of problems- KEY



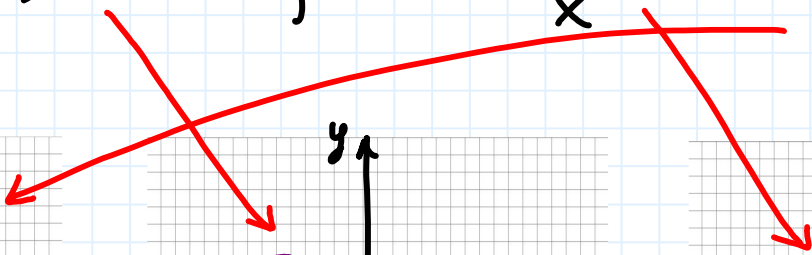
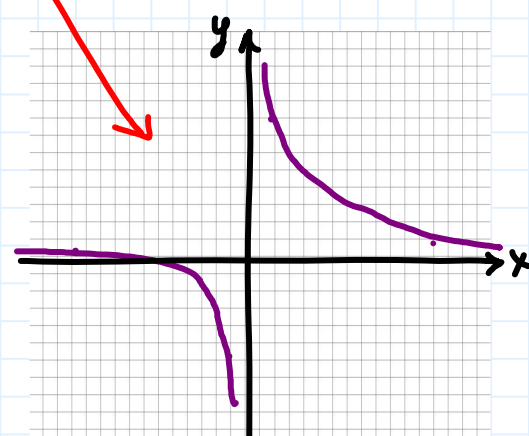
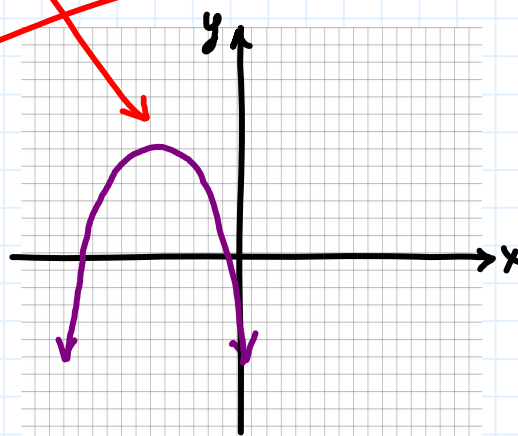
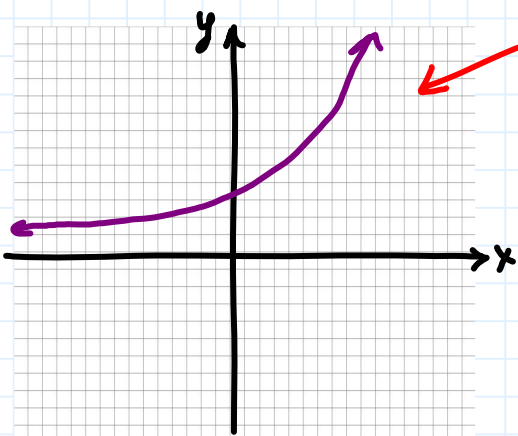
Example Set: A

Match the graph with an equation. Identify what type of function each equation models.

$$f(x) = -(x+6)^2 + 7$$

$$f(x) = \frac{x+8}{x}$$

$$f(x) = 3^x$$





## Example Set: B

Determine if the point (3, 6) is on the graph of the function

$$f(x) = 4x - 1$$

NO

$$f(x) = 2x^2 - 12$$

YES

$$f(x) = 3^x$$

NO

$$f(x) = \frac{4x + 12}{x + 1}$$

YES



## Example Set: C

Find an equation for the linear function

$$f(1) = 3, \quad f(4) = 12$$

$$f(x) = 3x$$

$$f(-2) = 6, \quad f(5) = -10$$

$$f(x) = -\frac{16}{7}x + \frac{10}{7}$$

$$f(3) = -2, \quad f(0) = 7$$

$$f(x) = -3x + 7$$