

5B – Graphs of Quadratics and Exponentials Continued

 Video - ["Increasing and Decreasing Intervals - Example" - MathontheWeb \(5:07\)](#)

EX3) Is the equation $y = x^2 + 5x - 2$ increasing or decreasing on the interval $[-6, -3]$ of the domain, also written as $-6 \leq x \leq -3$.

EX4) On which interval of the domain is the equation $y = x^2 - 4x - 3$ increasing? Which is it decreasing?

 Video - ["End Behavior - Example" - MathontheWeb \(6:02\)](#)

EX5) Describe the end behavior of the following functions:

a. $f(x) = 2^x$

b. $g(x) = 3^{-x} + 1$

c. $h(x) = -x^2 + 4$

 Video - ["Systems of Equations - Example" - MathontheWeb \(4:13\)](#)

EX6) Determine the solution(s) to the system of equations.

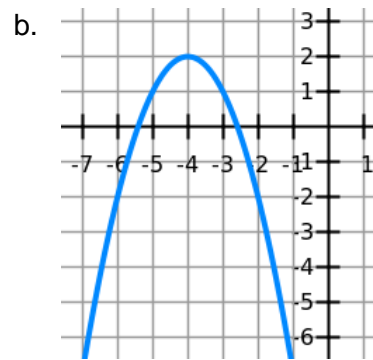
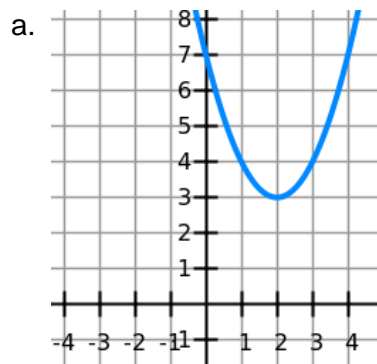
a.
$$\begin{cases} y = 2^{0.5x} \\ y = x^2 - 3 \end{cases}$$

b.
$$\begin{cases} y = 2^x \\ y = (0.5)^x \end{cases}$$

c.
$$\begin{cases} y = 3^{-x} \\ y = -x^2 - 1 \end{cases}$$

Video - ["Vertex Form of a Quadratic - Example" - MathontheWeb \(7:23\)](#)

EX7) Determine an equation of a parabola in vertex form that can match the given graph:



EX8) Graph the quadratic function without the use of a calculator.

a. $y = (x - 3)^2 + 4$

b. $y = -(x + 2)^2 - 1$

Video - ["Comparing Exponential Functions - Example" - MathontheWeb \(3:59\)](#)

EX9) Alex graphed the function $f(x) = 2^x$. He decides to add another one and graphs $g(x) = 6^x$. Describe the change from $f(x)$ to $g(x)$.

EX10) Gabby graphed the function $h(x) = 5^x$. She decides to add another one and graphs $k(x) = (0.75)^x$. Describe the change from $h(x)$ to $k(x)$.