Name: _____

1. Evaluate the function $f(x) = -\dfrac{x-2}{x^2 + 2x + 1}$ at the given values.

    a. $f(0)$ b. $f(2)$ c. $f(-1)$

2. Let $g(x) = 2x^2 - 5x - 12$. Evaluate and solve the following as indicated. State your answer using formal notation as per the notation standards.

    a. $g(0)$ b. $g\left(-\dfrac{3}{2}\right)$ c. Solve $g(x) = 0$.

3. Let $h(t) = -7$. Evaluate and solve the following as indicated. State your answer using formal notation as per the notation standards.
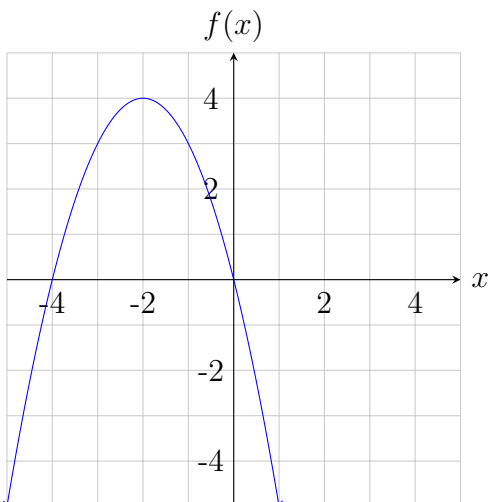
    a. $h(-3)$ b. $h(2)$ c. Solve $h(t) = -7$.   d. Solve $h(t) = 0$.

4. Given the function f, shown in the graph below, evaluate or solve as indicated. Use formal notation as per the notation packet.
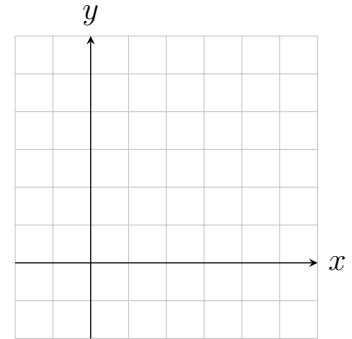

    a. $f(0)$

    b. $f(-1)$

    c. $f(x) = 3$

    d. $f(x) = -1$

5. Suppose the function, H, multiplies the input, x, by 2, then subtracts 4, and then takes the square root of that in order to obtain the output.

   a. Give a numeric description of H.

   b. Give a symbolic description of H.

   c. Give a visual description of H.

   d. What is $H(4)$?

   e. Solve $H(x) = 2$.

   f. What is the domain and range of H?

6. Let $s(t) = 13t^2 + t + 100$, where s is the position (in miles) of a car driving on a straight road at time t (in hours). The car's velocity (in miles per hour) at time t is given by $v(t) = 26t + 1$.

   a. Using function notation, express the car's position after 3.4 hours.

   c. Use function notation to express the question, "When is the car going 58 miles per hour?"

   b. Where is the car 3.4 hours into its drive?

   d. Where is the car when it is going 27 miles per hour?

7. Given the following functions, determine their domain and range. State your answers in both interval and set notation per the notation standards.

a.

b.
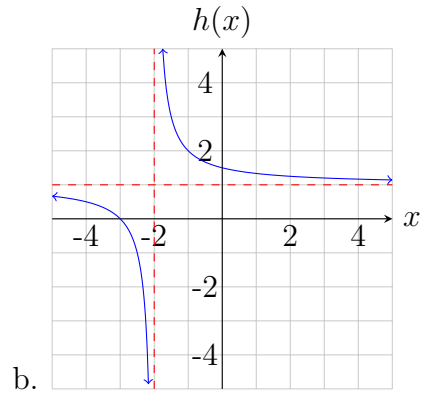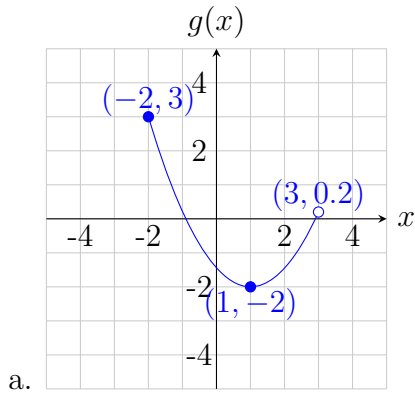
8. Determine the domain of the following functions.

a. $K(x) = -\dfrac{2x - 3}{3x^2 + 2x - 8}$

c. $H(t) = \dfrac{\sqrt{x - 5}}{3x + 5}$

b. $k(t) = \sqrt{2 - 3x}$

d. $f(t) = \dfrac{8}{\sqrt{2x - 3}}$

9. You are to draw a rectangle with a perimeter of 12 inches. Determine a function which models the area of the area given its width in inches. What is the domain and range of this function and what is the maximum area you could have for the rectangle?