

- Given the function  $f(x) = \sqrt{4 - x^2}$ ,
  - Find the domain of the function. Write the answer in interval notation.
  - Find the range of the function. Write the answer in interval notation.
- Sketch the graph of the function  $f(x) = [|2x|]$ .
- The definition of an even function is  $f(-x) = f(x)$ . The definition of an odd function is  $f(-x) = -f(x)$ . Determine if  $f(x) = \frac{x - x^5}{x^3}$  is even or odd. Be sure to show your work.
- A relationship is symmetric to both the  $x$  and the  $y$  axes. In the first quadrant, the graph of the relationship consists of the two line segments connecting  $(0, 0)$  to  $(2, 4)$  to  $(4, 0)$ . Draw the full relationship.
- Find the center and radius of the circle  $x^2 - 4x + y^2 + 5y = 0$ .
- Graph the equation  $(x^2 + y^2 - 4)(x + y - 2)(x - y - 2) = 0$
- Find the equation of the line in slope-intercept form that passes through the points  $(3, 6)$  and  $(-6, -1)$
- Find the equation of the line in slope-intercept form that passes through the points  $(-6, 6)$  and  $(-6, -1)$ .
- The cost to a bakery for making croissants is approximately \$0.07 per croissant with fixed costs of \$240,000.
  - Find the linear cost function for the bakery.
  - What is meant by the term "fixed cost"?
- Find the average rate of change of the function  $f(x) = 2x^2$  on the interval  $1 \leq x \leq 4$ .
- For the function  $f(x) = x^2 - 3x$ , find simplified version of the expression  $\frac{f(a+h) - f(a)}{h}$ .
- The graph of a function  $f(x)$  consists of the two line segments connecting  $(0, 0)$  to  $(2, 4)$  to  $(4, 0)$ . Sketch the graph of  $-2f(2x)$ .
- Write the function  $f(x)$  given in the previous problem as an absolute value function with domain  $0 \leq x \leq 4$ .
- Traders often buy foreign currency in the hope of making money as the currency's value changes. Suppose you can buy 0.923 euros for one U. S. dollar on the same day that one euro can buy 153 Japanese yen. Write a function that describes how many yen can be purchased for  $x$  U. S. dollars.
- Find the inverse function for  $f(x) = x^2 - 6x + 9$ ,  $x < 3$ .
- Find the exact value(s) of the point(s) such that the distance between  $(2, 3)$  and  $(x, -2)$  is 7.
- Find the point(s)  $P$  such that  $P$  forms an equilateral triangle with  $(0, 0)$ , and  $(3, 4)$ .