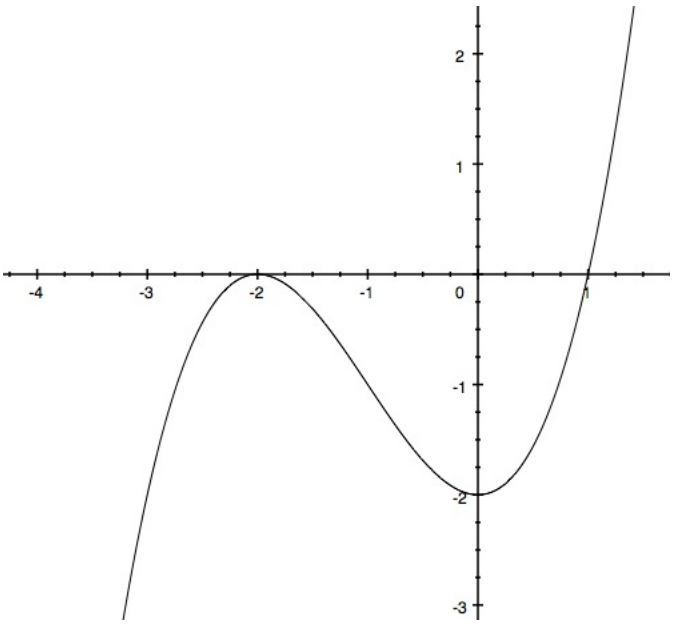
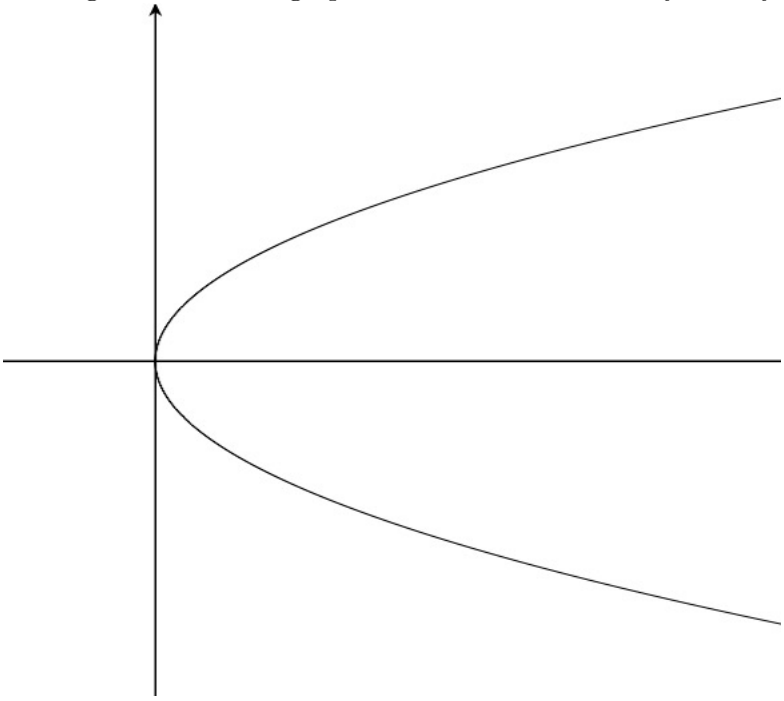
Functions Examples

1. Given the graph below, do the following:
   (a) Evaluate $f(-1)$
   (b) For what values of x is $f(x) = 0$
   (c) State the domain and range of f (assuming the graph contains all points)
   (d) On what intervals is f decreasing?

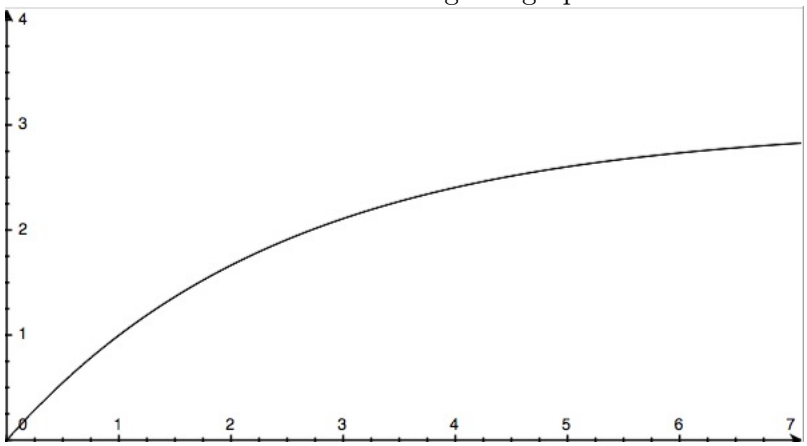


2. Is the given curve the graph of a function of x? Why or why not?



Functions Examples

3. Salt water is being poured into a bucket of water at a given rate, and water from the bucket is coming out at the same rate. The following is a graph of the concentration of salt in the bucket vs. time.



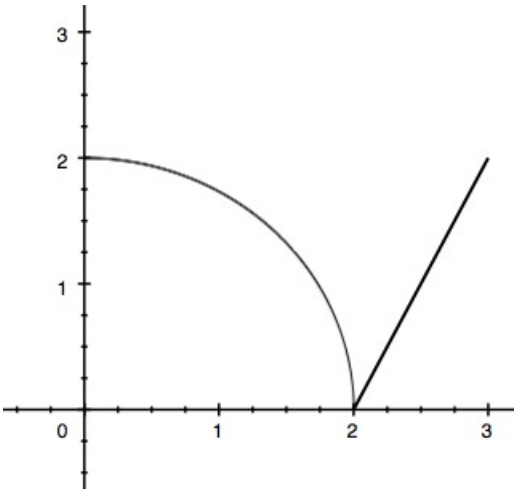
   (a) What is the range of the concentration function appear to be?

   (b) What does the graph say about the amount of salt in the bucket at time $t = 0$?

4. Chewbacca$^{\text{TM}}$has entered into a contract for Rogaine®, and has agreed to do a photoshoot every 3 months for them. He needs to use their product about 2 weeks prior to the photoshoot to see the growth he needs. Immediately afterward, he trims down to his original length. Sketch a graph of the length of his fur (hair?) as a function of time.

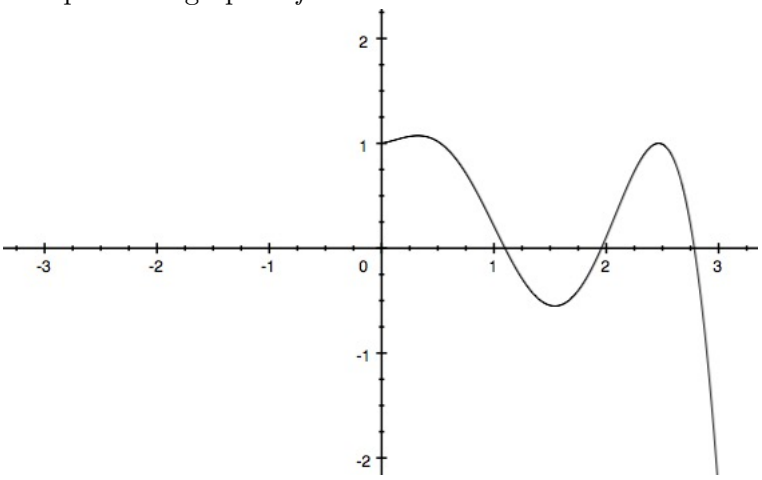
5. Sketch the graph of $y = |x + 1| - x + 2$

6. Find an expression for the function whose graph is given below:

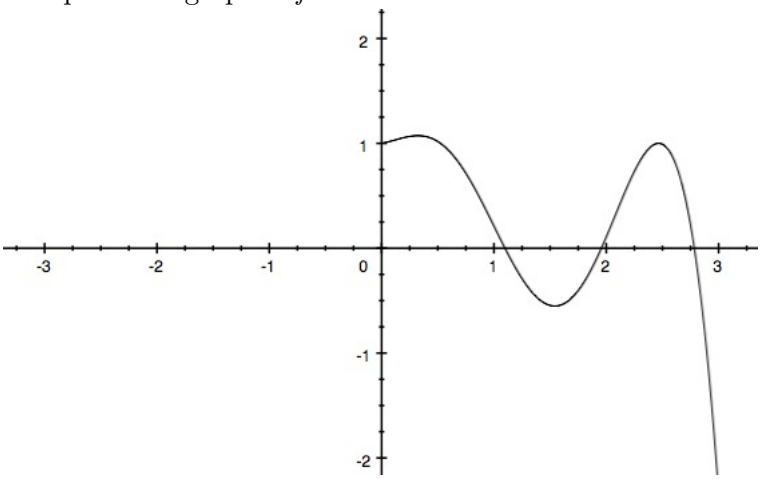


7. A function has domain $[-3, 3]$ and a portion is shown in the graph below

   (a) Complete the graph if f is even



   (b) Complete the graph if f is odd



8. Find the domain of the function: $f(x) = \ln(3 - x)$

9. Find the domain of the function: $f(x) = \sqrt{x^2 - 4}$

10. Find the domain of the function: $f(x) = \dfrac{\sqrt{5 - x}}{\ln(x)}$