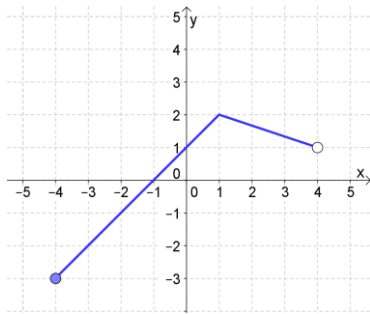
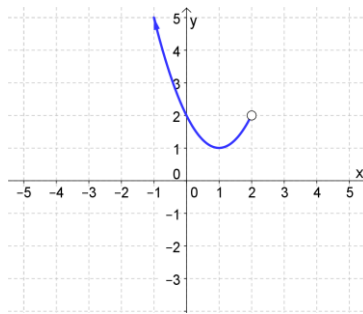


Note: Write your answers to local maxima, local minima, absolute maxima, and absolute minima in the form  $f(123) = 456$ .

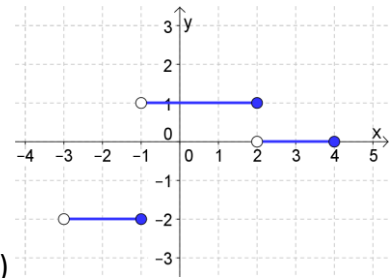
1. Use the graph of each function to find its domain and range.



a)

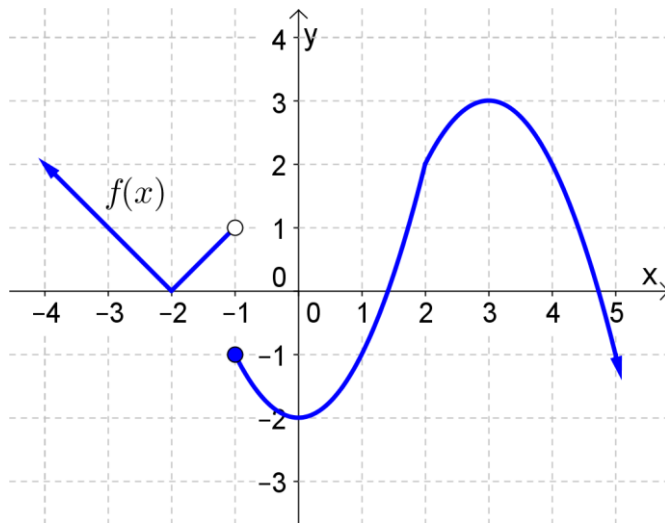


b)



c)

2.

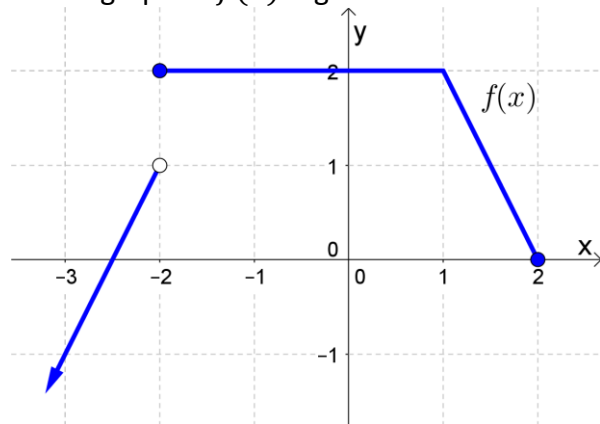


a) Determine the intervals on which  $f(x)$  is increasing, decreasing, and constant.

b) Find all local maxima and minima (write answers in the form  $f(123) = 456$ ).

c) Find the values of  $x$  for which  $f(x) = 2$ .

3. The graph of  $f(x)$  is given below.

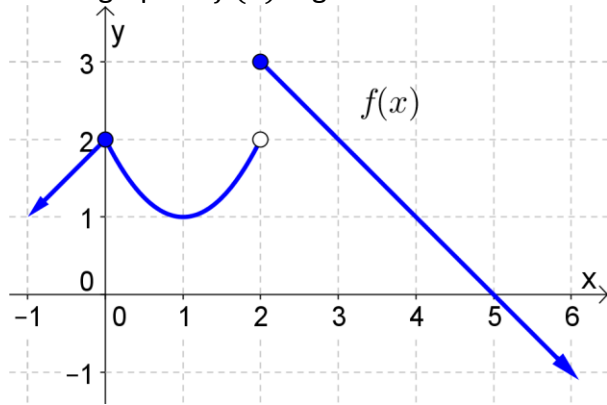


a) Determine the intervals on which  $f(x)$  is increasing, decreasing, and constant.

b) Find the domain of  $f(x)$ .

c) Find the range of  $f(x)$ .

4. The graph of  $f(x)$  is given below.



a) Determine the intervals on which  $f(x)$  is increasing and decreasing.

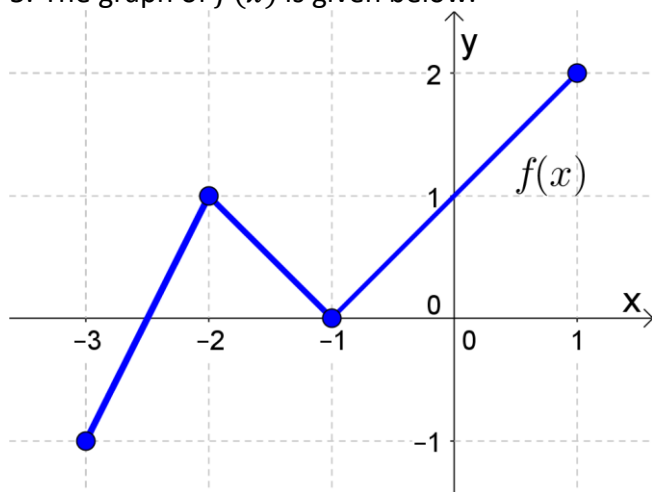
b) Find all local maxima and minima.

c) Find the value(s) of  $x$  for which  $f(x) = 1$ .

d) Find the domain of  $f(x)$ .

e) Find the range of  $f(x)$ .

5. The graph of  $f(x)$  is given below.



a) Determine the intervals on which  $f(x)$  is increasing and decreasing.

b) Find all local maxima and minima.

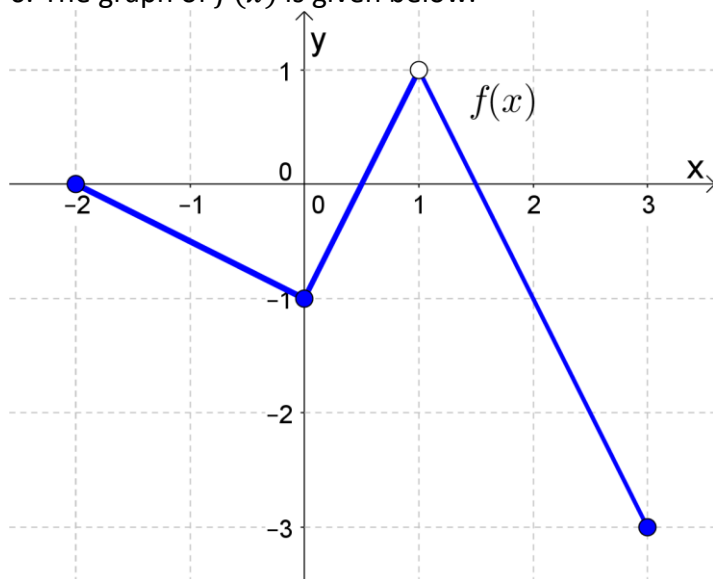
c) The **absolute maximum** is the largest function value in the domain of the function (if any). The **absolute minimum** is the smallest function value in the domain of the function (if any). Find the absolute maximum and absolute minimum of  $f(x)$ , if any.

d) Find the value(s) of  $x$  for which  $f(x) = 1$ .

e) Find the domain of  $f(x)$ .

f) Find the range of  $f(x)$ .

6. The graph of  $f(x)$  is given below.



a) Determine the intervals on which  $f(x)$  is increasing and decreasing.

b) Find all local maxima and minima.

c) Find the absolute maximum and absolute minimum of  $f(x)$ , if any.

d) Find the value(s) of  $x$  for which  $f(x) = -1$ .

e) Find the domain of  $f(x)$ .

f) Find the range of  $f(x)$ .

Optional exercises from the Sullivan book if you'd like more practice:  
2.2 (p.64) #13-23 odd (part a only)  
2.3 (p.78) #25-31 odd (parts b and c only), 33, 35, 49-55 odd