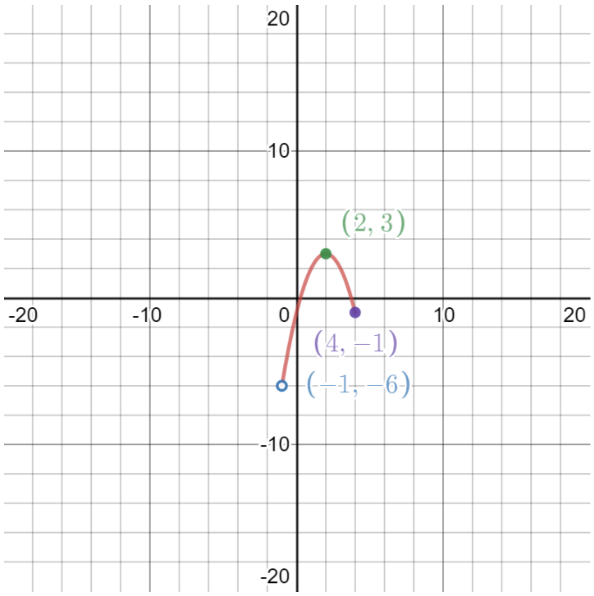
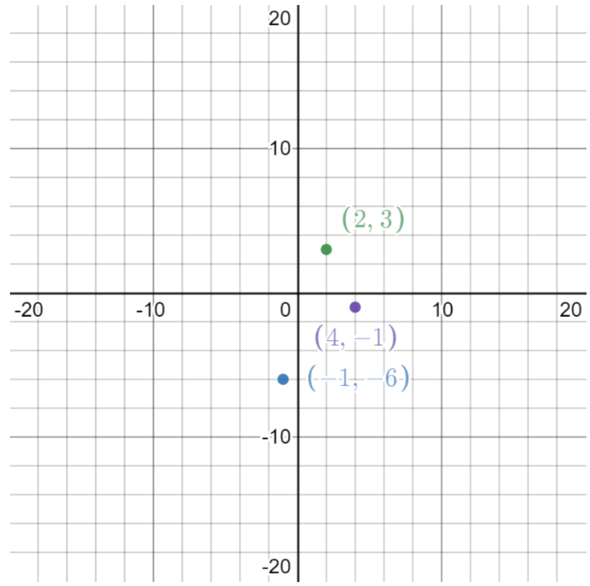
Chapter 3 Practice test

#1 –2: Determine the domain and range of each function, write your answer in interval notation when appropriate.

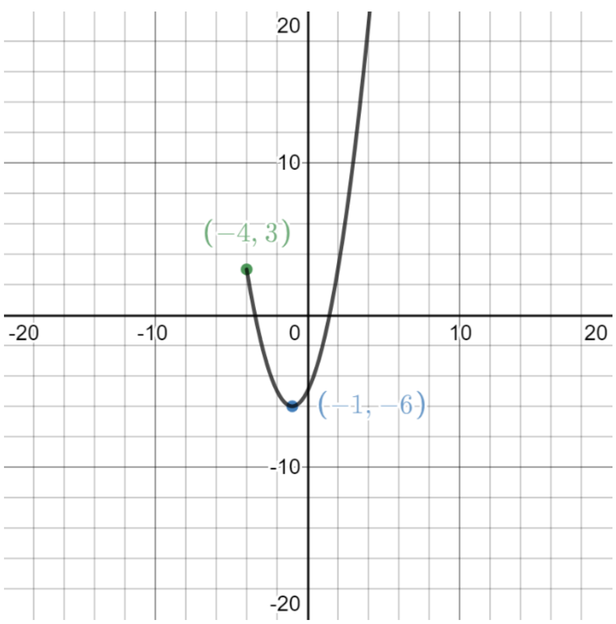
1)



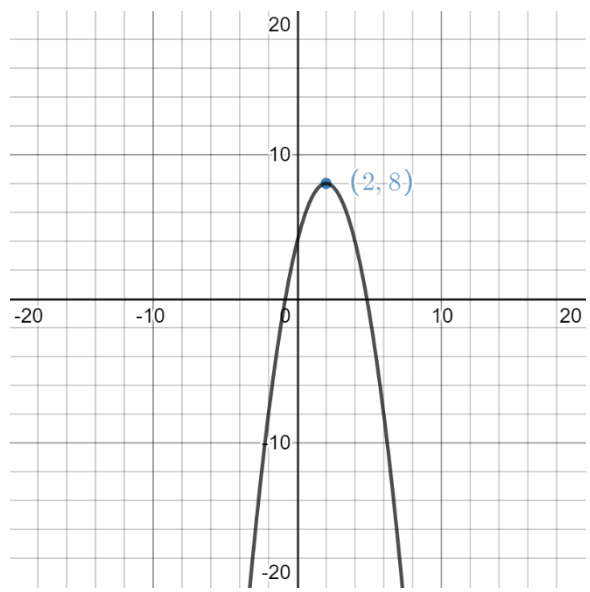
2)



3)



4)



#5-7: Use algebra to find the domain of each function. Write your answer in interval notation.

5) $f(x) = \frac{x-4}{x^2+3x+2}$ 6) $f(x) = \sqrt{x-6}$ 7) f(x) = $x^2 - 16$

#8– 10: let f(x) = 2x + 5 and g(x) = 3x – 1, find the following

8) (f-g)(x) 9) $(g \circ f)(x)$ 10) (f+g)(2)

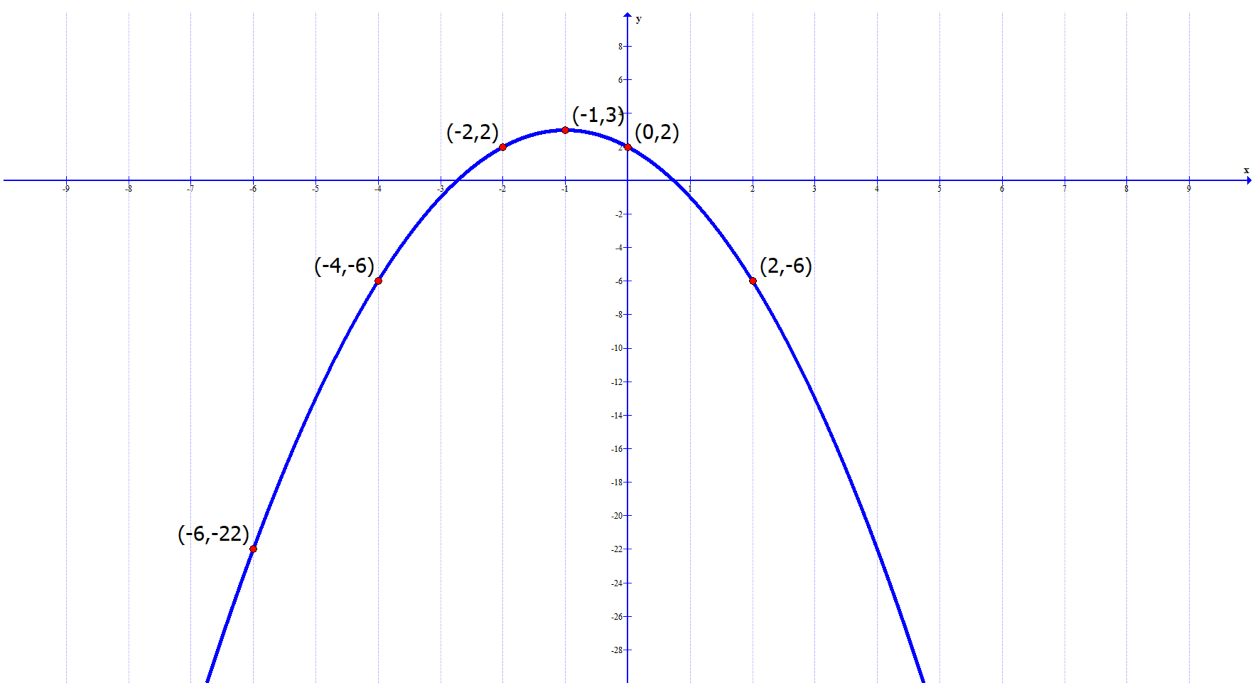
11) Find the difference quotient; that is find $\frac{f(x+h)-f(x)}{h}$; f(x) = 2x – 3

12) Find the average rate of change of f(x) = $x^3 + 6x^2$ from 0 to 2

13) g(x) = $\begin{cases} x+5, if\ x \leq 2 \\ x^2+6, if\ 2 < x \leq 5 \\ 5x\ if\ x > 5 \end{cases}$

a) g(2) b) g(6) c) g(5)

14) Use the graph below to answer the following: (call the function graphed below f(x))

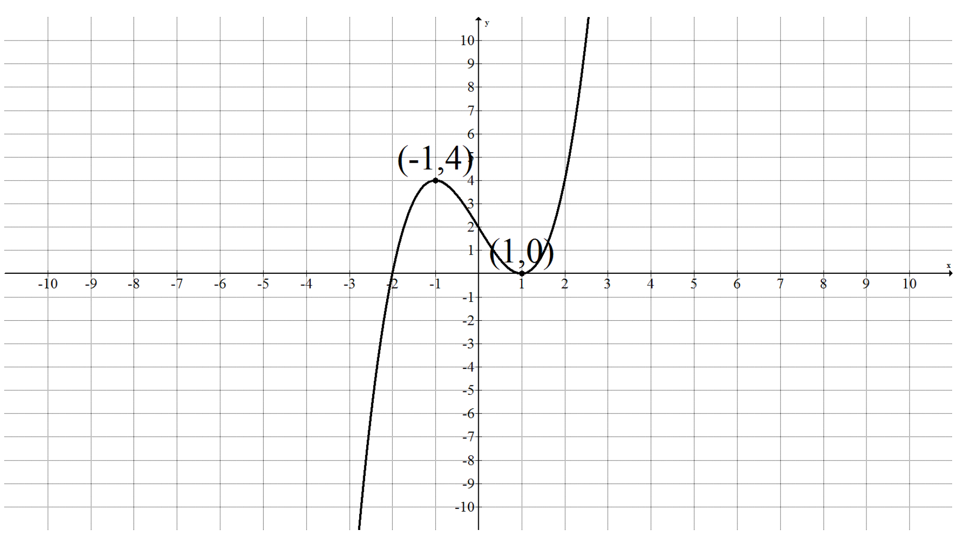


14a) Find f(2) 14b) Find f(-6)

14c) Find all values of x such that f(x) = 2

14d) Find all values of x such that f(x) = -6

Use the graph below to find the following.



15a) the interval(s) where the function graphed is increasing
15b) the interval(s) where the function graphed is decreasing
15c) the local maximum point
15d) The local maximum value (if any)
15e) the local minimum point
15f) The local minimum values (if any)

#16 - 20 let $f(x) = x^2$

a) find the requested function

b) describe the transformation from the original function.

16) $f(x-3)$

17) $-f(x+5)$

18) $f(x)+2$

19) $f(x+2)-4$

20) $f(x-1)+7$

21) A campground owner has 2000 meters of fencing. He wants to enclose a rectangular field bordering a river, with no fencing needed along the river, and let W represent the width of the field.

a) Write an equation for the length of the field

b) Write an equation for the area of the field.

c) Find the value of w leading to the maximum area

d) Find the value of L leading to the maximum area

e) Find the maximum area.

Up and down shifts	Transformation
y = f(x) + k (k>0)	Shift the graph **UP** k units
Y = f(x) – k (k>0)	Shift the graph **DOWN** k units

Left and right shifts	Transformation
y = f(x+h) (h >0)	Shift graph **LEFT** h units
y = f(x-h) (h>0)	Shift graph **RIGHT** h units

Reflections	Transformation
y= -f(x)	**REFLECTS** graph about **x-axis**
y= f(-x)	**REFLECTS** graph about **y-axis**

Compressing and stretching	Transformation
y = af(x) (a >0)	**STRETCHES** the graph when **a > 1**
	COMPRESSES graph when **0 < a < 1**