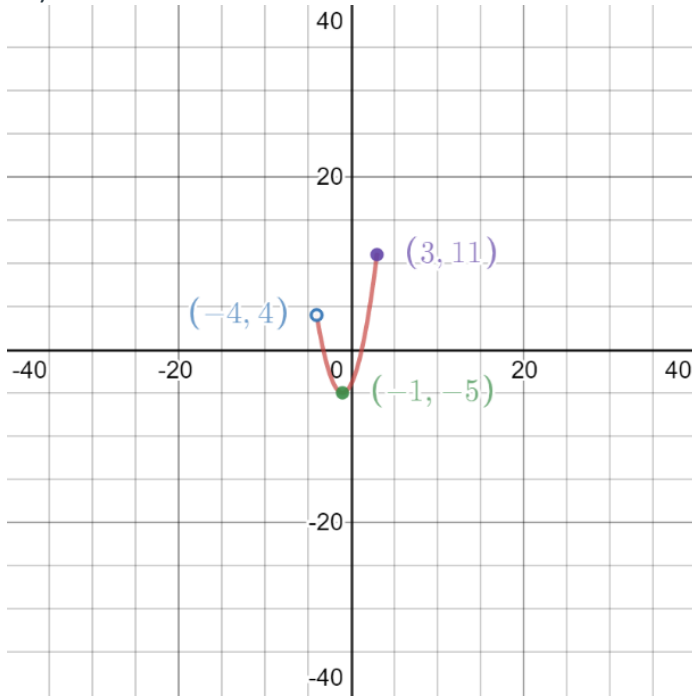


Grima Mat 151

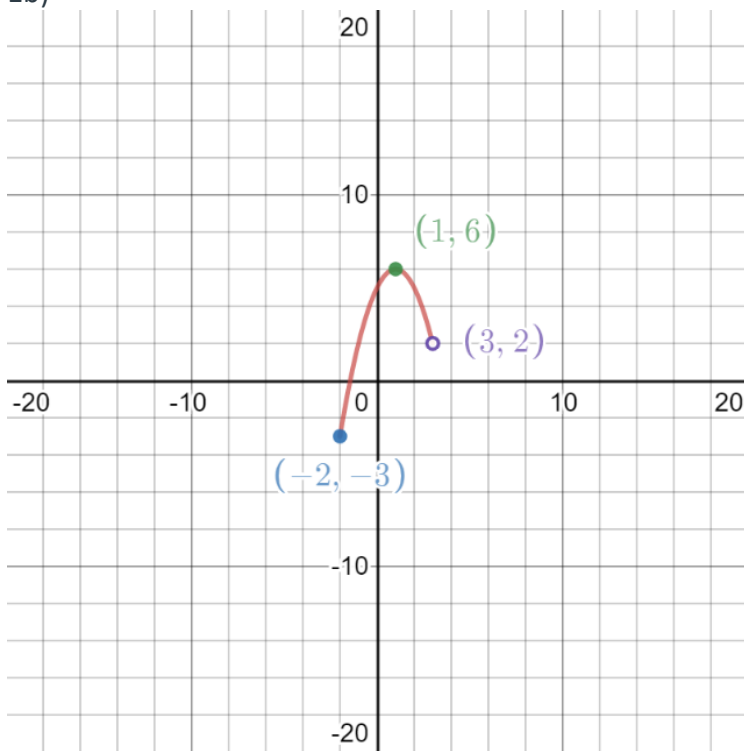
Chapter 3 – extra practice test

1) Determine the domain and range of the function in each graph, write your answers in interval notation.

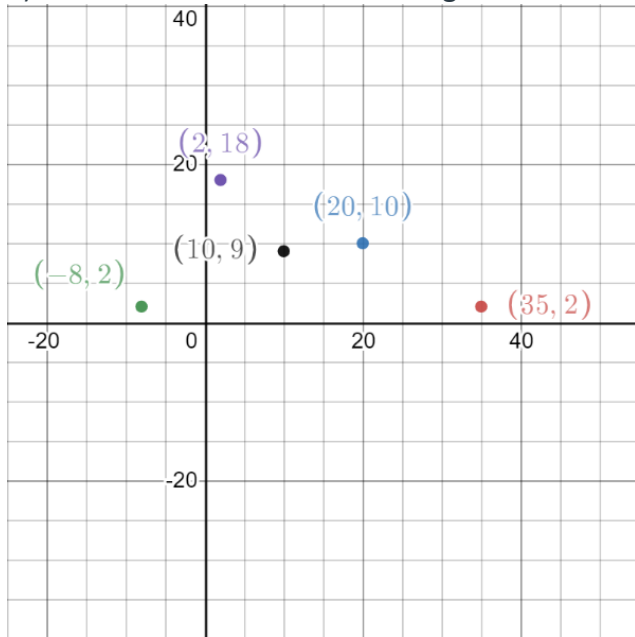
1a)



1b)



2) Determine the domain and range of the function, write your answer using set braces.



3) Use algebra to find the domain of the function. Write your answer in interval notation, or in words.

$$f(x) = \frac{x-9}{x^2+12x+35}$$

4) Use algebra to find the domain of the function. Write your answer in interval notation, or in words.

$$f(x) = \sqrt{x-8}$$

5) Use algebra to find the domain of the function. Write your answer in interval notation, or in words.

$$f(x) = x^2 + 4x - 12$$

6) $f(x) = 5x - 1$, $g(x) = 4x - 5$ find the following:

6a) $(f + g)(x)$

6b) $(f - g)(x)$

7) $f(x) = 2x - 1$, $g(x) = 5x - 4$ find:

$(f \circ g)(x)$

8) $f(x) = 7x - 4$ and $g(x) = 6x + 1$ find:

$(f - g)(5)$

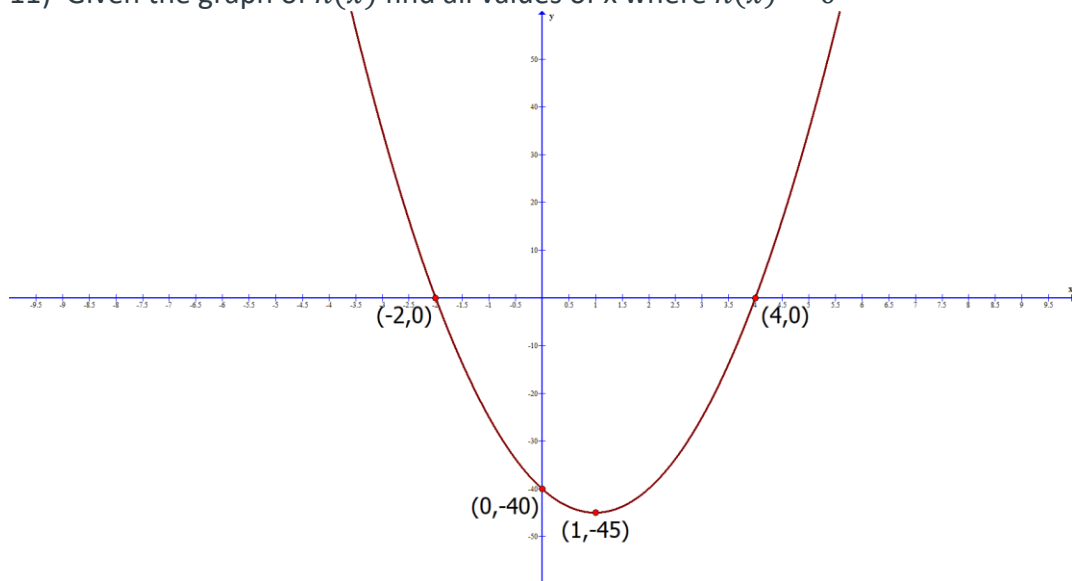
9) Find the difference quotient; that is find $\frac{f(x+h)-f(x)}{h}$ when $f(x) = 5x - 4$

10) $f(x) = \begin{cases} x + 1, & x \leq 5 \\ 2x, & 5 < x < 8 \\ 3x + 1, & x \geq 8 \end{cases}$ Find the following:

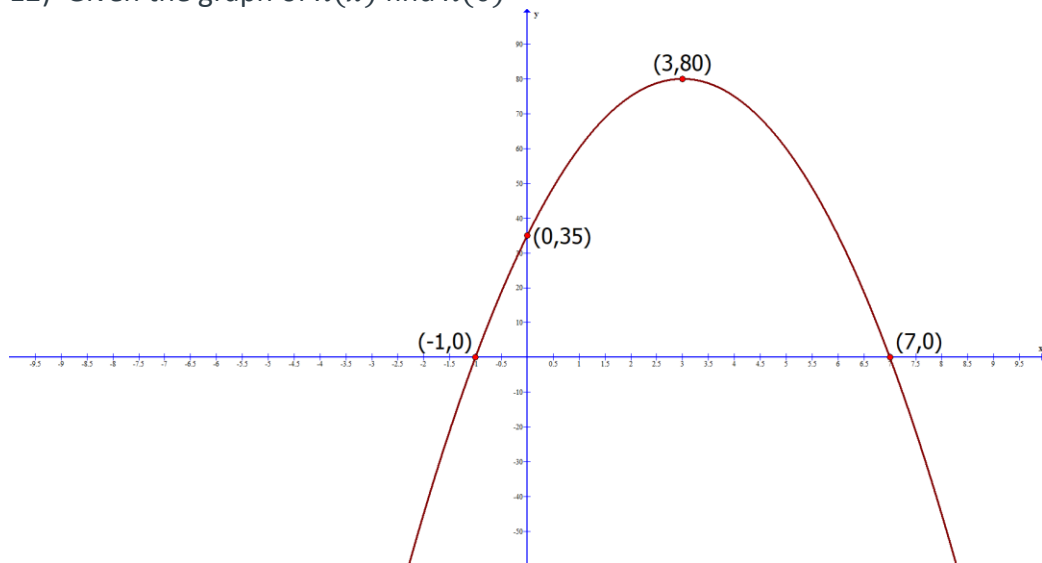
10a) $f(5)$

10b) $f(8)$

11) Given the graph of $h(x)$ find all values of x where $h(x) = 0$

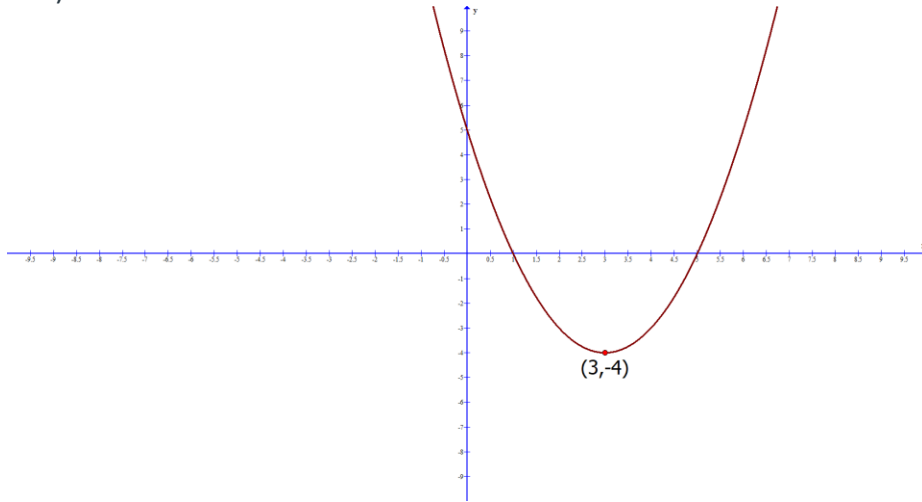


12) Given the graph of $h(x)$ find $h(0)$

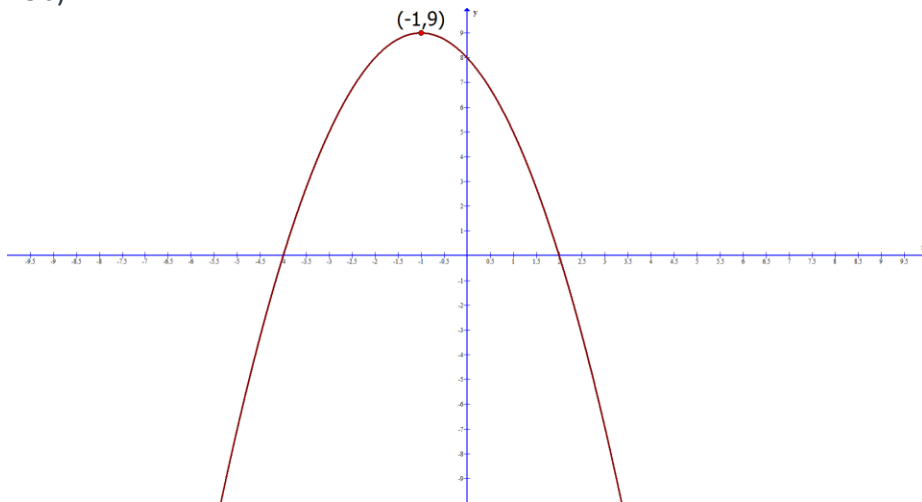


13) Given the graph of $h(x)$ find the domain and range. Write your answer in interval notation.

13a)



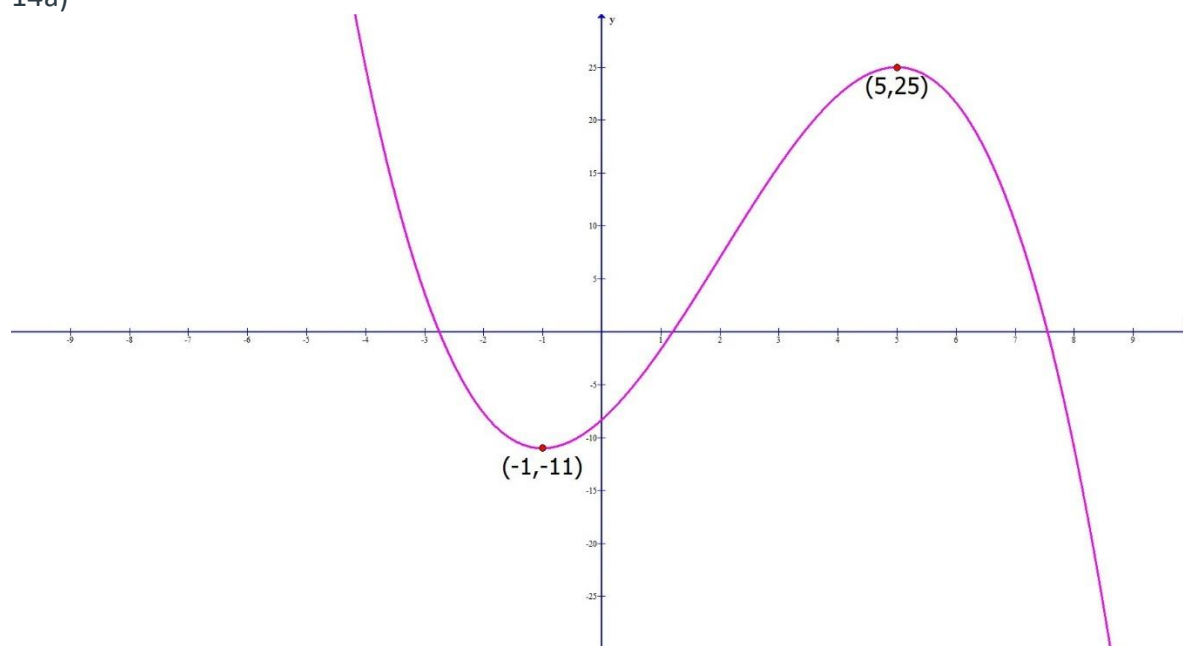
13b)



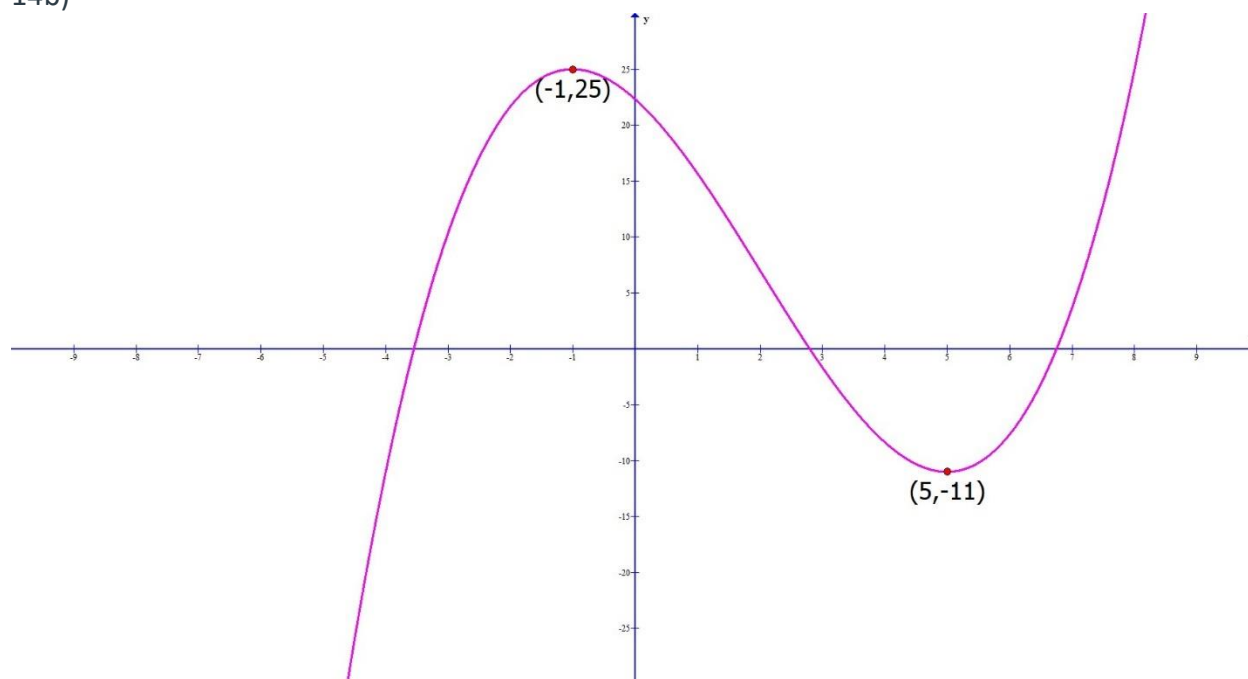
14) The graph of $f(x)$ is given below. Find the interval(s) where the graph of $f(x)$ is:

- i) Increasing
- ii) decreasing

14a)



14b)



15) use the graphs in problem 14a to find:

- a) The local maximum point
- b) The local maximum value (if any)

16) use the graphs in problem 14b to find:

- a) The local maximum point
- b) The local maximum value (if any)

17) Find the average rate of change of $f(x) = 3x^2 + 1$ from $x = 2$ to $x = 5$

18) $f(x) = x^2$

18a) Find $f(x - 2)$

18b) describe the transformation from $f(x) = x^2$

19) $f(x) = x^2$

19a) Find $f(x + 1) + 8$

19b) describe the transformation from $f(x) = x^2$

20) $f(x) = x^2$

20a) Find $-f(x - 2) - 8$

20b) describe the transformation from $f(x) = x^2$

21) A campground owner has 80 meters of fencing. He wants to enclose a rectangular field bordering a river, with no fencing needed along the river. Let W represent the width of the field. Follow these steps to find the dimensions of the field that yields the largest area.

- 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