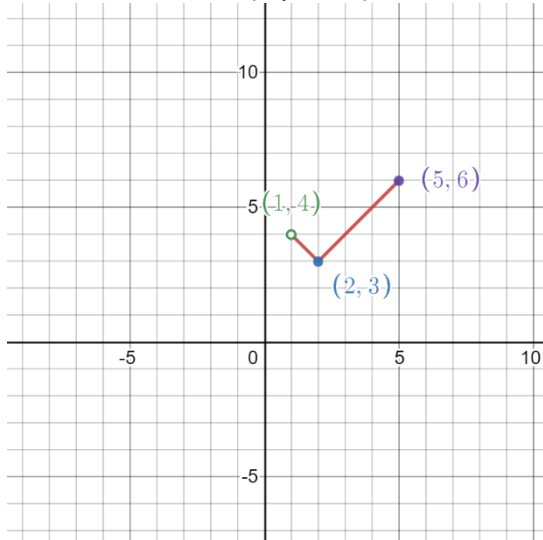


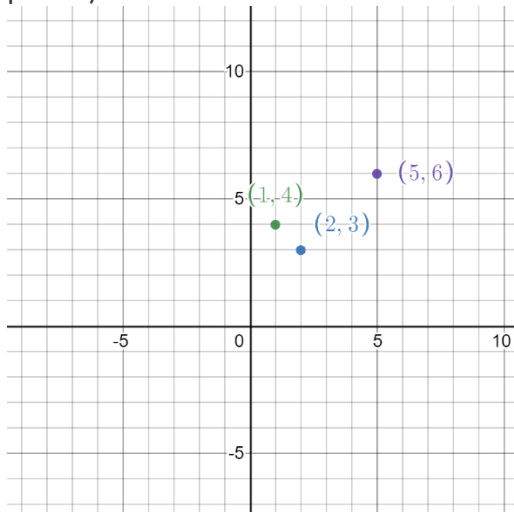
Grima Mat 151

Chapter 3 practice test with hypothetical point values

1) Determine the domain and range of the function in each graph, write your answers in interval notation. (6 points)



2) Determine the domain and range of the function, write your answer using set braces. (3 points)



3) Use algebra to find the domain of the function. Write your answer in interval notation, or in words. (4 points)  $f(x) = \frac{x-2}{x^2+5x-36}$

4) Use algebra to find the domain of the function. Write your answer in interval notation, or in words. (4 points)  $f(x) = \sqrt{x-3}$

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

$$f(x) = x^2 - 9$$

6)  $f(x) = 7x + 3$ ,  $g(x) = 6x - 4$  find  $(f - g)(x)$  (4 points)

7)  $f(x) = 5x - 1$ ,  $g(x) = 4x + 7$  find  $(f \circ g)(x)$  (4 points)

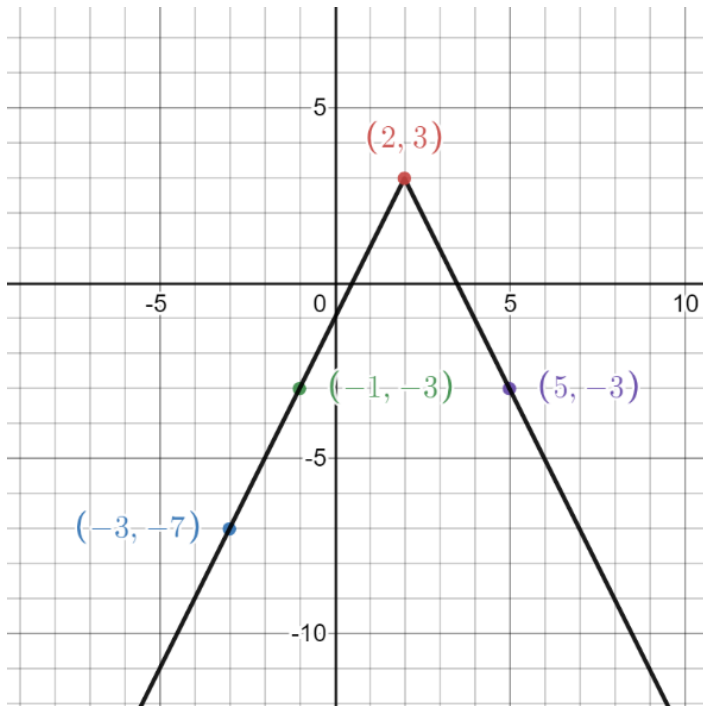
8)  $f(x) = 8x - 2$  and  $g(x) = 3x + 5$  find  $(f - g)(3)$  (4 points)

9) Find the difference quotient; that is find  $\frac{f(x+h)-f(x)}{h}$  when  $f(x) = 7x + 2$  (5 points)

10)  $f(x) = \begin{cases} x + 4, & x \leq 3 \\ 2x + 1, & 3 < x \leq 8 \\ 3x, & x > 8 \end{cases}$  Find the following: (2 points each, 4 total points)

10a)  $f(3)$                       10b)  $f(8)$

11) Given the graph of  $h(x)$  find all values of  $x$  where  $h(x) = -3$  (3 points)

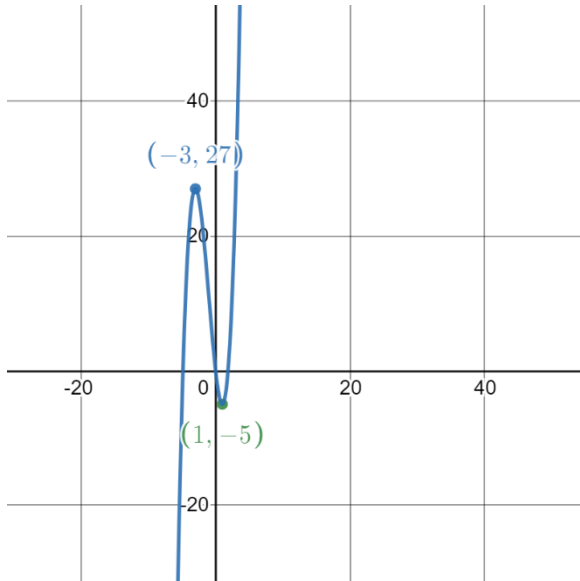


12) Given the graph of  $h(x)$  above find  $h(-3)$  (2 points)

13) Given the graph of  $h(x)$  in problem 11, find the domain and range. Write your answer in interval notation. (4 points)

14) The graph of  $f(x)$  is given below. Find the interval(s) where the graph of  $f(x)$  is: (3 points each, 18 total points)

- a) Increasing                                      b) decreasing                                      c) the local maximum point  
 d) the local maximum value    e) the local minimum point                      f) the local minimum value



15) Find the average rate of change of  $f(x) = x^2 - 9$  from  $x = 2$  to  $x = 3$  (4 points)

16)  $f(x) = x^2$  (3 points each part 6 total points)

16a) Find  $f(x + 3)$                                       16b) describe the transformation from  $f(x) = x^2$

17)  $f(x) = x^2$  (3 points each part 6 total points)

17a) Find  $f(x - 1) + 2$                                       17b) describe the transformation from  $f(x) = x^2$

18)  $f(x) = x^2$  (3 points each part 6 total points)

18a) Find  $-f(x) - 5$                                       18b) describe the transformation from  $f(x) = x^2$

21) A campground owner has 400 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. (2 points each, 10 total points)

- 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