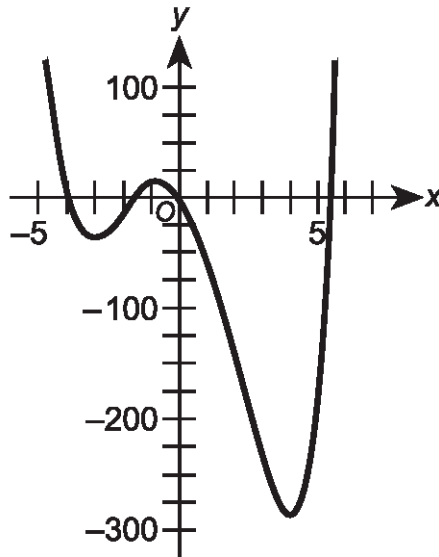


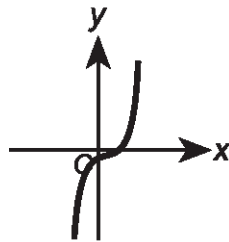
Name:
Teacher:

Date:
Class/Period:

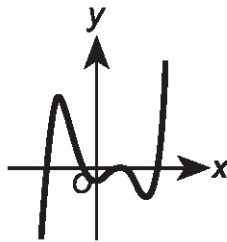
- 1) Consider the graph of the function $f(x) = x^4 - 25x^2 - 36x$, which has one x -intercept at $(-4,0)$. Find all the other zeros of the function algebraically. Show your work, and explain how you found your answer.



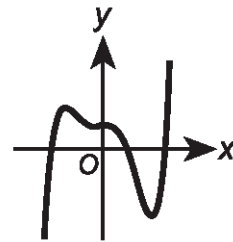
- 2) Ms. Phillips explained to her class that polynomial functions of degree 5 with real coefficients always have 5 roots. She showed her students the following 3 graphs of polynomial functions of degree 5.



Graph 1



Graph 2



Graph 3

- A. State how many distinct real roots there are for each graphed polynomial. Use evidence from the graphs to explain your answer.
- B. Each of the graphed polynomials has a different number of real roots. State how many real and complex roots each graphed polynomials has. Use evidence from the graphs to explain your answer.

- 3) Given the function $f(x) = -x^4 - 3x^3 + 101x^2 + 543x + 940$, use a graphing calculator to do the following:
- Find the zeros of the function. Round any zeros you find to the nearest tenth. Explain how you found your answer step-by-step, as if you were explaining to a student who does not know how to use a graphing calculator.
 - Identify any local minima or maxima of the graph of the function as ordered pairs. Indicate which are local minima and which are local maxima. Round any minima or maxima to the nearest tenth. Explain how you found your answer step-by-step.
 - Find the range of the function. Round the numbers in your answer to the nearest tenth. Explain how you found your answer step-by-step.
 - Sketch the graph of the function. List a viewing window that shows all the information you found in the other parts of the problem. Explain why you chose your viewing window.

Please use the space below to write your response(s) to the writing assignment provided by your teacher. If there are multiple tasks to the question, please clearly label the number or letter of each task in the column to the left of your answers. If you need additional pages for your response, your teacher can provide them.

Please write the name of the writing assignment here: _____

Task

