Math 126 - Spring 2020 - Exam #2 Review

Name: _____

ID# _____

HONOR CODE: On my honor, I have neither given nor received any aid on this examination.

Signature: _____

Instructions: Do all scratch work on the test itself. Make sure your final answers are clearly labeled. There are extra blank graphs at the end of the test, in case you need them. If you do use the extra blank graphs at the end of the test, be sure to (1) indicate on the question that you have more work on the extra blank graphs and (2) label your work on the extra blank graphs so I know what work goes with which question. **SHOW ALL WORK ON THIS EXAM IN ORDER TO RECEIVE FULL CREDIT!!!**

No.	Score
1	/14
2	/8
3	/14
4	/10
5	/8
6	/10
7	/18
8	/18
Bonus	/10
Total	/100

1. Given

$$f(x) = \text{quadratic function in vertex form}$$

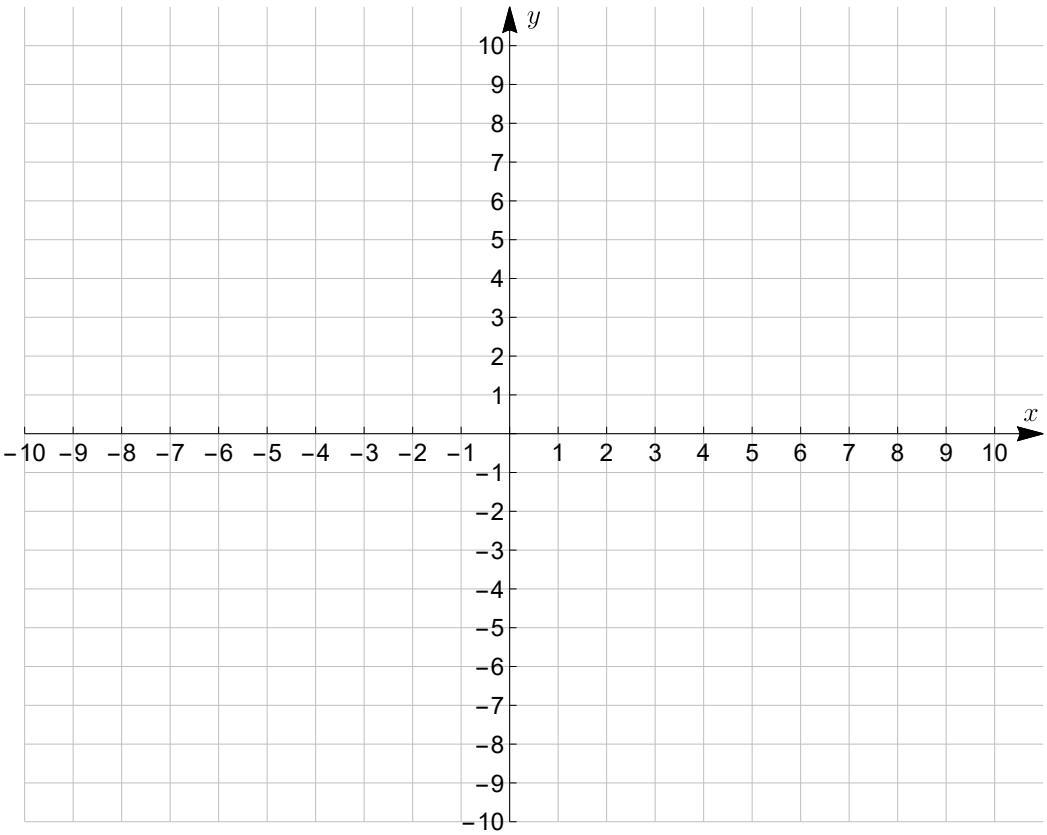
(a) State whether the graph opens upward or downward. **Explain your answer.** (2 points)

(b) State the vertex. (2 points)

(c) State whether the function has a maximum or minimum value, where that maximum or minimum value occurs, and what the maximum or minimum value is. (3 points)

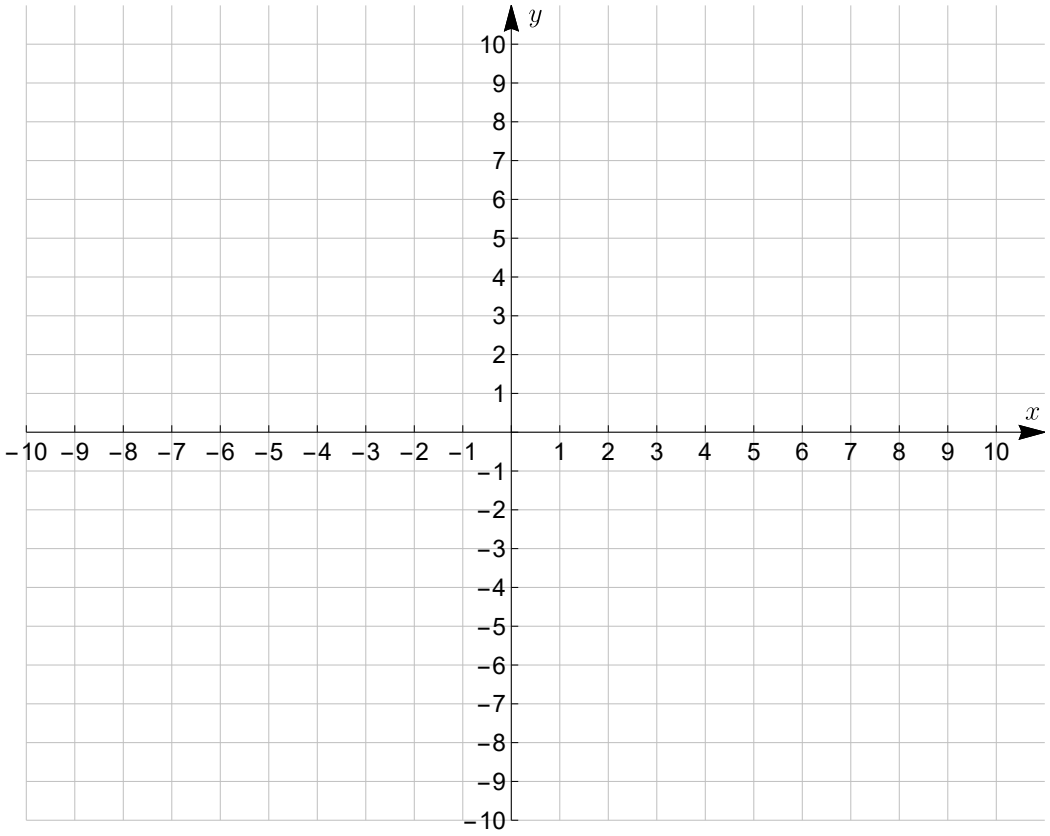
(d) State the domain and range of the function. (3 points)

(e) Graph the function. (4 points)



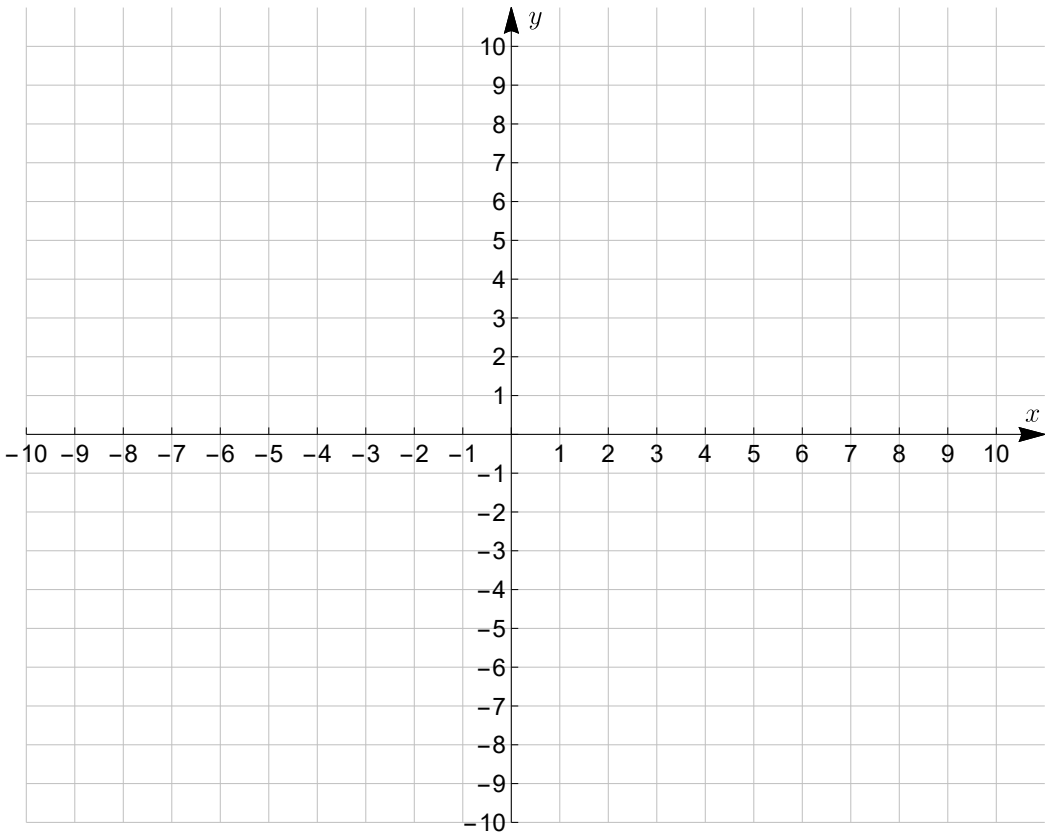
2. Write the following quadratic function in vertex form then graph the function. (8 points)

$$f(x) = \text{quadratic function in standard form}$$



3. Graph the following function. (14 points)

$$f(x) = \text{polynomial function in factored form}$$



4. Find the quotient of each of the following. (5 points each)

(a) (polynomial function) $\div$ (polynomial function)

(b) (polynomial function) $\div$ (linear function)

5. Determine the number of positive zeros and the number negative zeros the following polynomial function can have, then list the potential rational zeros of the function. (8 points)

$$f(x) = \text{polynomial function}$$

6. Find all the roots of the following polynomial function and write the function in factored form. (10 points)

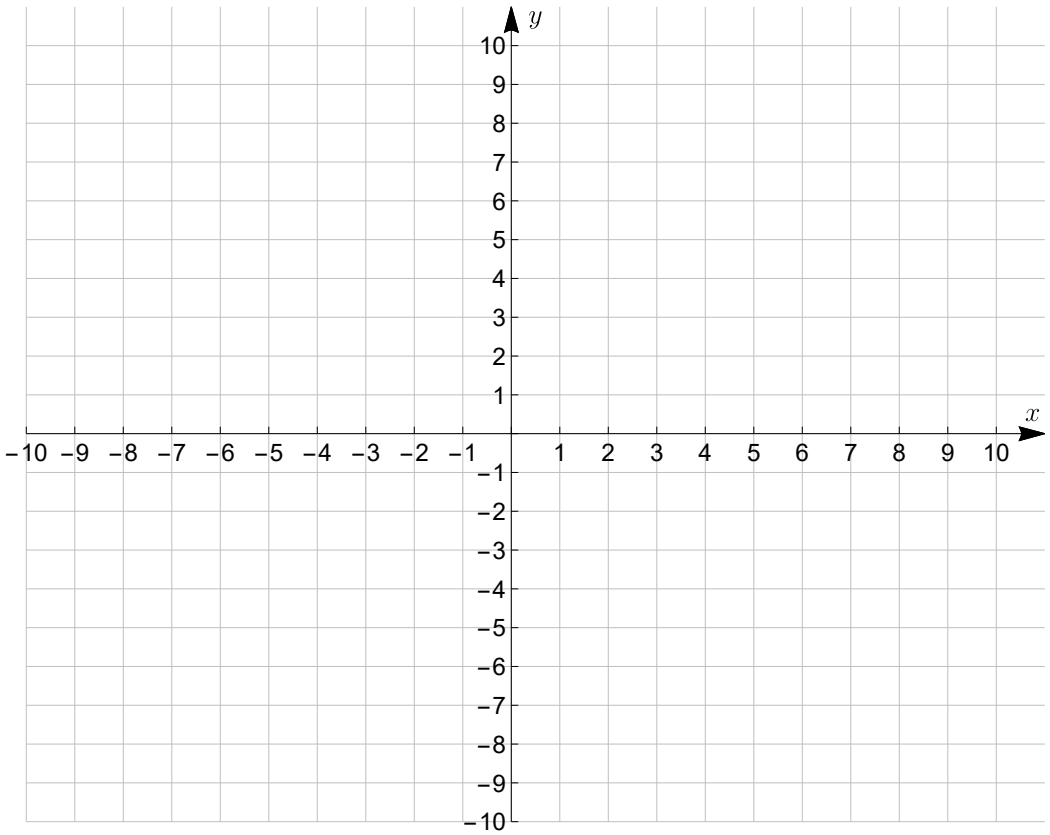
$$f(x) = \text{polynomial function}$$

6. (continued)

7. Graph the following function. (18 points)

$f(x) =$ rational function given in both standard form and factored form

Example: $f(x) = \dfrac{x^2 + 4x + 3}{x^2 - 4} = \dfrac{(x+1)(x+3)}{(x+2)(x-2)}$



7. (continued)

8. Solve each of the following inequalities. (6 points each)

(a) polynomial or rational inequality

(b) polynomial or rational inequality

(c) polynomial or rational inequality

Bonus. Find the domain of the function. (10 points)

$$f(x) = \text{function}$$

Bonus. (continued)