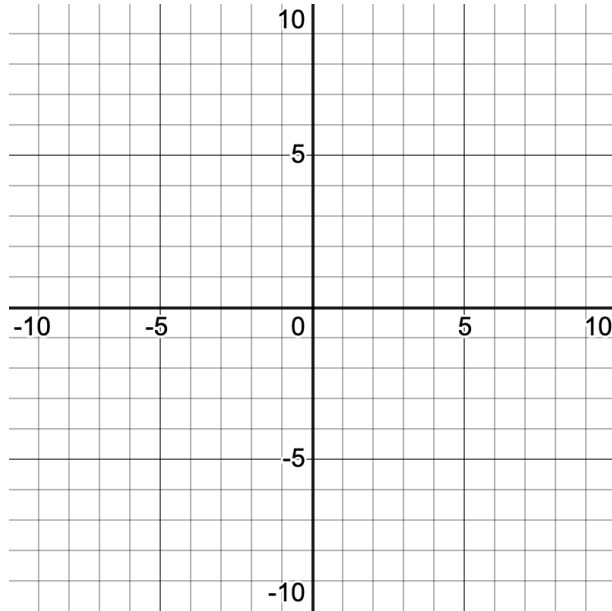


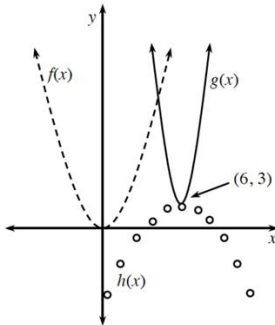
## Homework 9.1.4

1. Make a complete graph of the function  $f(x) = |x+4| - 2$ . Describe the graph.



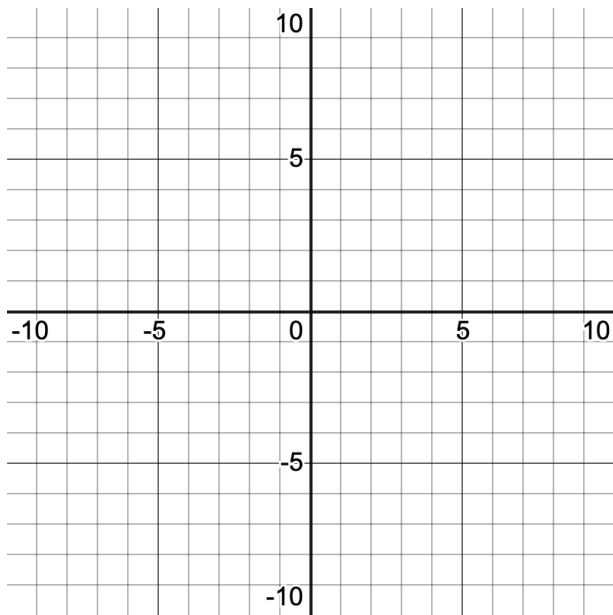
- a. Domain:
- b. Range:
- c. Intervals of increasing:
- d. Intervals of decreasing:
- e. x-intercept(s):
- f. y-intercept:

2. Examine the graph below that shows three parabolas. The graph of  $f(x) = x^2$  is shown as a dashed curve.



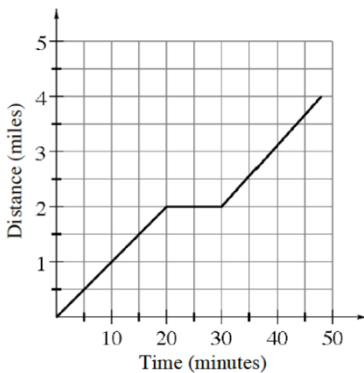
- a. Domain of  $f(x)$ ? \_\_\_\_\_ Range of  $f(x)$ ? \_\_\_\_\_
- b. Write **possible** equations for the two other parabolas. These do not have to be exact. You don't need to find an "a" term.
- c. Domain of  $g(x)$ ? \_\_\_\_\_ Range of  $g(x)$ ? \_\_\_\_\_

3. What are the x- and y-intercepts and the vertex of  $f(x)=x^2-2x-8$ ? Sketch the graph and write the equation in graphing (vertex) form. Remember to use completing the square to get the function into vertex form.



Vertex Form Work:

4. Eliana likes to use an app to graph her runs. The graph below shows her run from her house to the park and back.



- Write a description of Eliana's run based on the graph.
- What was Eliana's running speed from her house to the park? Give units.
- What was Eliana's running speed 25 minutes after she started her run? How does your answer relate to the slope of the graph?
- What was Eliana's running speed from the park to her house? Justify your answer using the graph.