

Math 176 — Quiz 3
Professor Busken

Name: _____

Directions: Tutor help not okay. You may not work together. You may not use a calculator. The use of any other electronic devices are strictly prohibited. Show your work on ALL of the questions. Due Tuesday, September 10th at 5:30 p.m. with no lates accepted!

1. (1 point) Find the vertex of $f(x) = -\frac{2}{3}(x + 3)^2 - 1$.

1. _____

2. (1 point) Does f open up or down?

2. _____

3. (4 points) What is the range of f ?

3. _____

4. (1 point) Find the vertex of $f(x) = 8(x - 13)^2 + 7$.

4. _____

5. (1 point) Does f open up or down?

5. _____

6. (4 points) What is the range of f ?

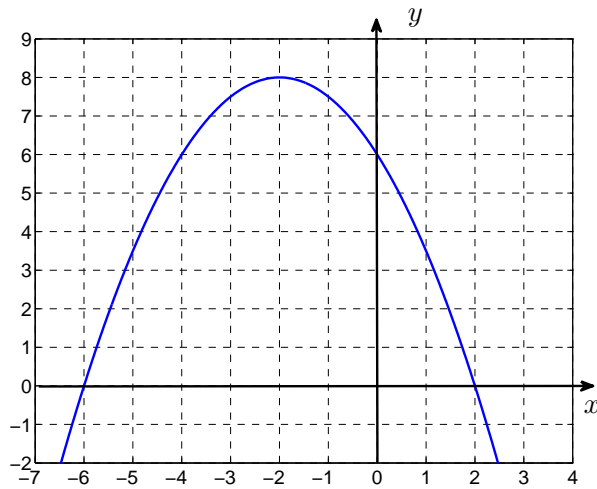
6. _____

Write the given quadratic function in standard (vertex) form.

6. (4 points) $g(x) = x^2 + 4x - 13$

7. (4 points) $g(x) = x^2 + 7x - 23$

The graph of a quadratic function f is given in the figure below.



8. (1 point) Find the coordinates of the vertex.
9. (2 points) Does f have a maximum or minimum? Where is it located.
10. (2 points) What is the axis of symmetry for f ?
11. (2 points) Find the x interval(s) on which the function is increasing.
12. (2 points) Find the x interval(s) on which the function is decreasing.
13. (2 points) What is the domain of f ?
14. (2 points) What is the range of f ?

Write the given quadratic function in standard (vertex) form.

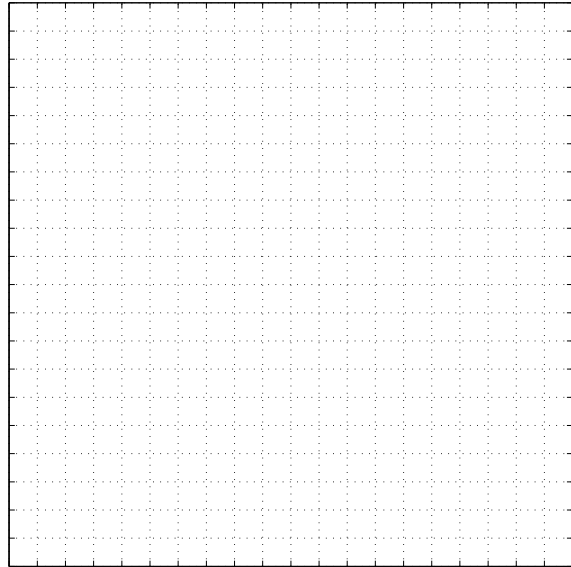
12. (6 points) $g(x) = 2x^2 + 5x - 17$

13. (6 points) $g(x) = \frac{1}{3}x^2 + 4x - 23$

15. (4 points) Find a function whose graph is a parabola with vertex $(2, 6)$ and that passes through $(5, 24)$.

A quadratic function is given. Express the quadratic function in standard form. Find its vertex and its x - and y - intercept(x). Sketch its graph. Show all of your work.

16. (8 points) $C(x) = -x^2 + 6x + 16$



17. (4 points) Find the solution set to the inequality $x^2 + 4x - 5 < 0$