Name: _____

MATH 101
Fall 2021
HW 9: Due 10/29

"Laziness is nothing more than the habit of resting before you get tired."

–Jules Renard

Problem 1. (10pt) Find the vertex form of the quadratic function $y = x^2 + 6x + 4$.

Problem 2. (10pt) Find the vertex form of the quadratic function $y = x^2 - 6x - 7$.

Problem 3. (10pt) Find the vertex form of the quadratic function $y = 4x^2 - 4x + 7$.

Problem 4. (10pt) Consider the quadratic function $f(x) = x^2 + 14x - 9$.

(a) Determine if the parabola opens upwards or downwards.

(b) Is the parabola convex or concave?

(c) Does the parabola have a maximum or minimum?

(d) Find the vertex and axis of symmetry.

(e) Find the maximum/minimum value of $f(x)$.

Problem 5. (10pt) Consider the quadratic function $f(x) = -2x^2 + 3x + 1$.

(a) Determine if the parabola opens upwards or downwards.

(b) Is the parabola convex or concave?

(c) Does the parabola have a maximum or minimum?

(d) Find the vertex and axis of symmetry.

(e) Find the maximum/minimum value of $f(x)$.