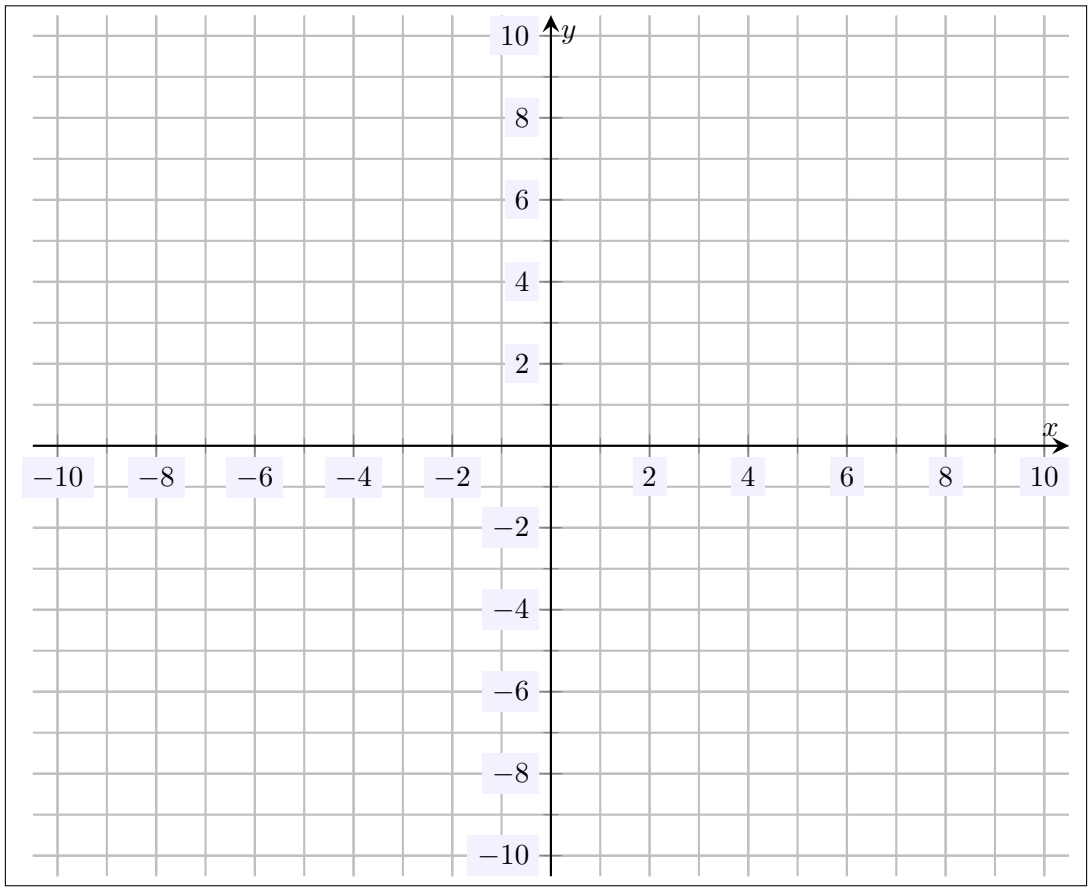
Name: _____

MATH 101
Spring 2022
HW 8: Due 03/29

"You only live once, but if you do it right, once is enough."

–Mae West

Problem 1. (10pt) Give a rough sketch of the quadratic function $y = 8 - (x + 7/2)^2$. Your sketch should include the vertex and axis of symmetry.



Problem 2. (10pt) Find the vertex form of the function $f(x) = 8x^2 + 24x + 13$ both by completing the square and using the 'evaluation-method.'

Problem 3. (10pt) Consider the function $f(x) = (x-8)^2 - 27$.

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

(b) Is the parabola convex or concave?

(c) Does the function $f(x)$ have a maximum or a minimum?

(d) Find the vertex and axis of symmetry.

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

Problem 4. (10pt) Consider the function $f(x) = x^2 + 6x + 3$.

(a) Find the vertex form of $f(x)$.

(b) Determine if the given parabola opens upwards or downwards.

(c) Is the parabola convex or concave?

(d) Does the function $f(x)$ have a maximum or a minimum? Find this value.

(e) Find the vertex and axis of symmetry.