

Homework 6

(due March 4)

Math 130 *Kovitz* 2020

1. Complete the square, getting the equation into the form

$$y = a(x - h)^2 + k.$$

- (a) $y = x^2 + 8x + 7$
 - (b) $y = 2x^2 + 20x + 53$
 - (c) $y = -x^2 + 12x - 33$
 - (d) $y = 2x^2 - 3x + 3$
2. Complete the square and graph the function, labeling the coordinates of the vertex, the x -intercepts (if any), and the y -intercept. Also state in which quadrant or quadrants the parabola lies.

$$y = -x^2 + 12x - 34$$

3. Prove that the graph of any equation of the form $y = ax^2 + bx + c$ has exactly one y -intercept.
4. Show, by completing the square, that the graph of $y = 2x + x^2 - 4$ lies above the line $y = -7$.