Math 152 Ch. 10 Test

1. Solve each equation by factoring or using the square root property
   a) $4x^2 - 36 = 0$
   b) $(m+3)^2 = 8$
2. Solve each equation by completing the square
   a) $x^2 + 6x + 10 = 0$
   b) $2x^2 - 8x + 3 = 0$
3. Use the quadratic formula to solve each equation
   a) $x^2 - 27x = 280$
   b) $-9x = 2 - 3x^2$
4. A carnival at a county fair normally sells three thousand 25 cents ride tickets on a Saturday. For each 5 cents increase in price, management estimates that 80 fewer tickets will be sold. What increase in ticket price will produce $994 of revenue on Saturday?
5. Find the coordinates of the vertex and the axis of symmetry of the graph. Do not graph the equation. $f(x) = 5x^2 + 20x + 25$

6. Sketch the graph of the function $y = 2(x-2)^2 - 4$. Label the vertex and x-intercepts.

7. The revenue R received for selling x stereos is given by the formula

   $$R = -\frac{x^2}{5} + 80x - 1{,}000 \cdot$$

   How many stereos must be sold to obtain the maximumrevenue? Find the maximum revenue.
8. Solve the equation $x^2 - 2x + 6 = 0$. Write the solution in $a + bi$ form.
9. Write each expression in a+bi form.
   a) $\dfrac{26}{3-2i}$
   b) $\left(3-\sqrt{-4}\right)\left(5-\sqrt{-9}\right)$
10. Solve each equation
    a) $x - 4 + \dfrac{3}{x} = 0$
    b) $4x^{-4} + 1 = 5x^{-2}$
11. Solve each inequality. Give each result in interval notation and graph the solution set.
    a) $x^2 + x - 12 \le 0$
    b) $\dfrac{1}{x} > 0$