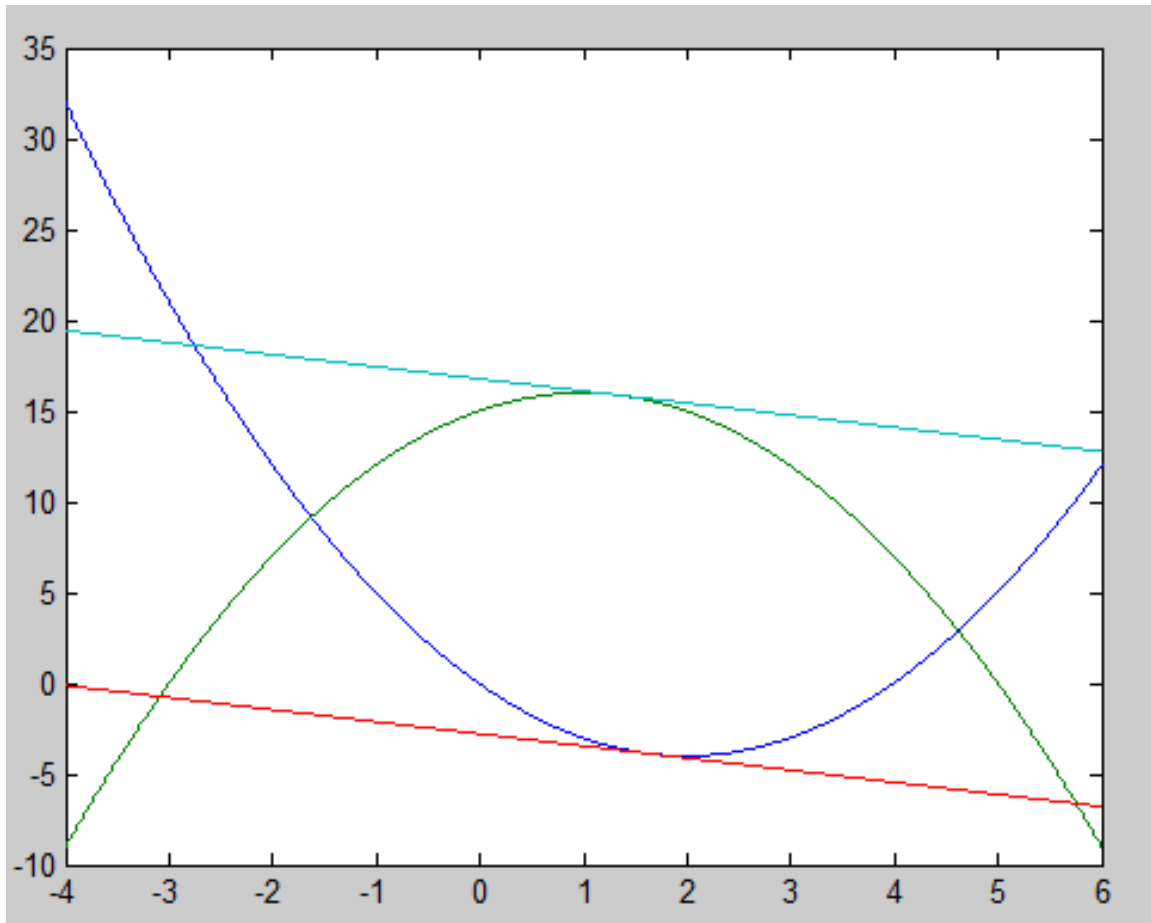**Homework Q2-50 points)**
This question is a little bit different from generic linear programing model.

Find maximum and minimum value of $(2x_1+3x_2)$
Constraints $x_2 \leq -(x_1)^2+2x_1+15$
                $x_2 \geq (x_1)^2-4x_1$

(HINT: You can use geometric illustration.)

Maximize:
Slope of $(2x_1+3x_2)$ is -2/3. Maximum value looks like top of the green line. Find tangent line that is parallel to -2/3.
Derivative of green line is $-2x_1+2=-2/3$ ----> $x_1=4/3$, x_2 is easily found using green curve equation. When both are plugged into $(2x_1+3x_2)$, 151/3 is obtained.

Minimize:
Slope of $(2x_1+3x_2)$ is -2/3. Minimum value looks like bottom of the blue line. Find tangent line that is parallel to -2/3.
Derivative of green line is $2x_1-4=-2/3$ ----> $x_1=5/3$, x_2 is easily found using green curve equation. When both are plugged into $(2x_1+3x_2)$, -25/3 is obtained.