STOR 614
Homework Assignment No. 9

1. Use the active set method to solve the problem

$$\begin{aligned} \min \quad & q(x) = x_1^2 + 2x_2^2 - 2x_1 - 6x_2 - 2x_1x_2 \\ \text{s.t.} \quad & \frac{1}{2}x_1 + \frac{1}{2}x_2 \le 1 && (1) \\ & -x_1 + 2x_2 \le 2 && (2) \\ & x_1 \ge 0 && (3) \\ & x_2 \ge 0 && (4) \end{aligned}$$

   Use $x_0 = (0, 0)$ as the initial point, and $W_0 = \{3\}$ as the initial working set.

   You can write a Matlab program, or implement the iterations manually, or use Matlab to help with some computation. In either case, print out or write down the iterate point x_k, the working set W_k, and the objective value $q_k = q(x_k)$ in each iteration.