

## 310-2 - Yossi Spiegel

### Solution to Problem set 3

#### Problem 1

The best-response function of firm 1 is  $BR_1(p_2) = (4+2p_2)/6$ . By symmetry,  $p_1 = p_2$  so the equilibrium is such that  $p = (4+2p)/6$ . Solving we get  $p = 1$ . Hence the NE is (1, 1).

#### Problem 2

(a) This game is just like a Bertrand game. Hence, when the cost of building a highway for both firms is \$10 million, the Nash equilibrium is (\$10, \$10).

(b) When firm 2's cost of building the highway is \$15 million, the Nash equilibrium of the game is (\$15, \$15). It is easy to check that any other pair of bids will induce at least one firm to deviate.