

MA152 Solutions to Homework 6

June 7, 2017

1. (a) We have

$$A = \begin{pmatrix} 1 & 5 \\ 0 & 4 \end{pmatrix}$$
$$B = \begin{pmatrix} 1 & 0 \\ 5 & 4 \end{pmatrix}$$

In A , 1 is a saddle point so $v_I = 1$. In B^T , 1 is a saddle point. So $v_{II} = 1$.

- (b) We have

$$v_I = \text{Val} \begin{pmatrix} 3 & 1 \\ 2 & 4 \end{pmatrix}$$

This is a 2×2 matrix without a saddle point, so we can find its value by looking for equalizing strategies. We get $v_I = 5/2$.

$$v_{II} = \text{Val} \begin{pmatrix} 10 & 0 \\ 5 & 20 \end{pmatrix}$$

This also doesn't have a saddle point, looking for equalizing strategies we find $v_{II} = 8$.

2. This is a textbook exercise, Part III section 2 question 3. The answer is in the online solutions.
3. This is a textbook exercise, Part III section 2 question 4.
4. This is a textbook exercise, Part III section 3 question 2.
5. This is a textbook exercise, Part III section 3 question 6.