

ANSWERS TO PRACTICE PROBLEMS 6

1. The Nash equilibria are highlighted.

		Bob		
		0	1	2
A n t h o n i a	0	0 , 5	0 , 10	0 , 5
	1	0 , 10	0 , 5	-5 , 0
	2	0 , 5	-5 , 0	10 , 0
	3	-5 , 0	10 , 0	-5 , 0
	4	10 , 0	-5 , 0	10 , 0

2. In the following, T stands for “tattoo” and N for “no tattoo”. The most favorite outcome is assigned a utility of 2 and the least favorite a utility of 0 (and 1 is the utility of the middle-ranked outcomes).

The Nash equilibria are highlighted.

		BARBARA	
		T	N
AMY	T	2 , 2 , 2	2 , 1 , 2
	N	1 , 2 , 2	1 , 1 , 0

CAROL chooses T

		BARBARA	
		T	N
AMY	T	2 , 2 , 1	0 , 1 , 1
	N	1 , 0 , 1	1 , 1 , 1

CAROL chooses N

3. (A) In the following, “O” means “keep old plotter”, “H” means “buy high-resolution plotter” and “L” means buy low-resolution plotter. We assign a utility of 2 to the best outcome and 0 to the worst (and 1 to the intermediate).

		Max		
		H	L	O
Caroline	H	0, 1, 2	0, 1, 2	0, 1, 2
	L	0, 1, 2	2, 1, 0	1, 2, 1
	O	0, 1, 2	1, 2, 1	1, 2, 1

Robert chooses: H

		Max		
		H	L	O
Caroline	H	0, 1, 2	2, 1, 0	1, 2, 1
	L	2, 1, 0	2, 1, 0	2, 1, 0
	O	1, 2, 1	2, 1, 0	1, 2, 1

Robert chooses: L

		Max		
		H	L	O
Caroline	H	0, 1, 2	1, 2, 1	1, 2, 1
	L	1, 2, 1	2, 1, 0	1, 2, 1
	O	1, 2, 1	1, 2, 1	1, 2, 1

Robert chooses: O

- (B-C) For Caroline L is a weakly dominant strategy (thus L and O are dominated). For Max O is a weakly dominant strategy and for Robert H is a weakly dominant strategy. Thus (L, O, H) is the dominant-strategy equilibrium. One would predict, therefore, that the old plotter will be kept.

- (D) There are six Nash equilibria. They are highlighted in the matrix above.

4. The Nash equilibria are highlighted in the matrix below.

		Player 2		
		F	G	H
Player 1	A	0, 0	2, 0	1, -1
	B	-1, 0	1, 2	2, 1
	C	0, 1	2, 1	3, 2
	D	0, 2	2, 3	3, 3