

Math 104
Exam 1

Name: _____

To receive full credit, you must show all of your work. The use of graphing calculators is not permitted.

Problem	Points	
1	20	
2	20	
3	20	
4	20	
5	15	
6	5	
Total	100	

1. (20 points) Solve the game.

		Player B			
		I	II	III	IV
Player A	I	1	3	4	2
	II	5	3	-1	0
	III	2	1	-1	-2

Player A's strategy:

Player B's strategy:

Value of the game:

2. (20 points) Set up and solve the guerillas vs. police game with 5 guerillas and 7 police.

Guerillas' strategy:

Police strategy:

Value of the game:

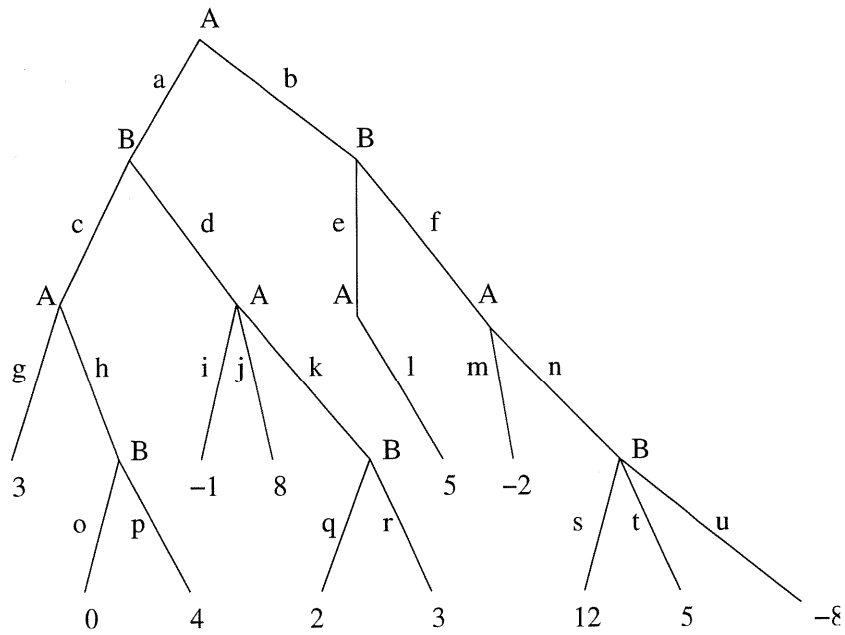
3. (20 points) Consider the following two-player zero-sum game: Each player (simultaneously) shows either one, two, or three fingers. If the number of fingers is the same B wins; otherwise A wins. In either case the payoff is equal to the number of fingers B is showing. Solve this game.

Player A's strategy:

Player B's strategy:

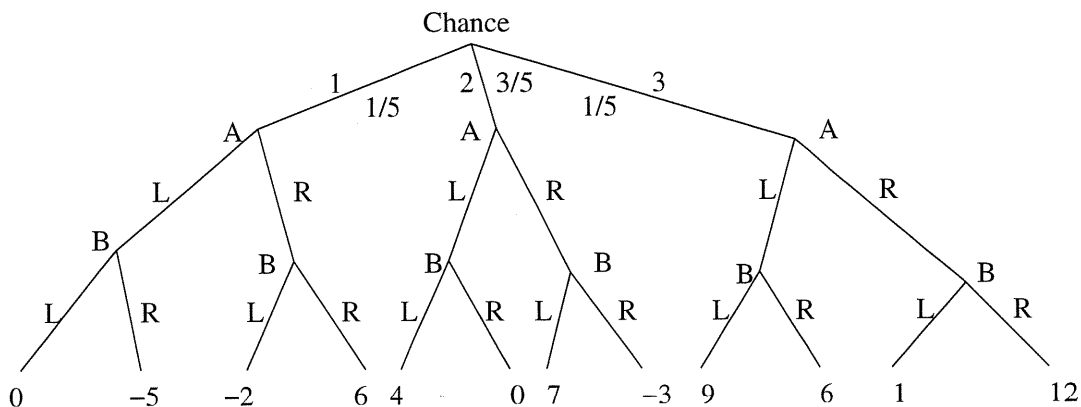
Value of the game:

4. (20 points) Solve the zero-sum game represented by the tree.



Answer: _____

5. (5 points each) Answer the following questions for the zero-sum game represented by the tree below. (Fractions denote probabilities.)



a) Write down all of Player A's strategies.

b) How many strategies does Player B have?

Answer: _____

c) If Player A plays the strategy "Always R" and Player B plays the strategy "Always L" what will be Player A's expected payoff?

Answer: _____

6. (5 points) Write down a 4×4 matrix which has exactly 3 saddle points. (Circle the saddle points.)