



The Prisoner's Dilemma

NAME:

CLASS:

DATE:



Basic

1) Describe two events that are:

- a) Impossible
- b) Certain
- c) Likely to happen
- d) Unlikely to happen

2) How many threes would you expect to get if you rolled a die:

- a) 30 times
- b) 150 times
- c) 360 times
- d) 600 times

3) Two dice are rolled together and the numbers on each of them are added together. Use the table below to list all the possible outcomes.

		First die					
		1	2	3	4	5	6
Second die	1						
	2						
	3						
	4						
	5						
	6						

- a) How many outcomes give a total of 2?
- b) How many outcomes give a total of 7?
- c) What is the probability of throwing a double 6?
- d) What is the most likely total outcome?

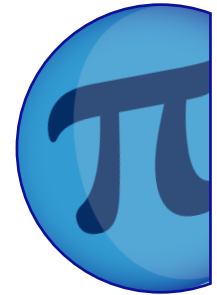


The Prisoner's Dilemma

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Core

1) Two dice are rolled together and the numbers on each of them are added together. Use the table below to list all the possible outcomes.

		First die					
		1	2	3	4	5	6
Second die	1						
	2						
	3						
	4						
	5						
	6						

a) How many outcomes give a total of 2?

b) How many outcomes give a total of 7?

c) What is the probability of throwing a double 6?

d) What is the most likely total outcome?



The Prisoner's Dilemma

Core

2) Five children play at a local chess club. The number of games that each child has won and lost is recorded in the table below.

Player	Games Won	Games Lost	Probability of Winning
Mark	4	10	
James	7	3	
Christine	4	6	
Jamil	8	3	
Natasha	7	7	

a) What is the probability that each child wins a game?

b) Which child is the best player?

c) If Jamil played Natasha who would you expect to win?

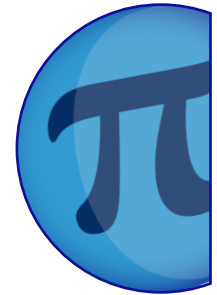


The Prisoner's Dilemma

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Advanced

1) Five children play at a local chess club. The number of games that each child has won and lost is recorded in the table below.

Player	Games Won	Games Lost	Probability of Winning
Mark	4	10	
James	7	3	
Christine	4	6	
Jamil	8	3	
Natasha	7	7	

a) What is the probability that each child wins a game? b) Which child is the best player?

c) If Jamil played Natasha who would you expect to win?

2) On a route to school a bus must pass through three sets of traffic lights.

The probability that a bus has to stop at a set of lights is $\frac{3}{4}$.

a) What is the probability that the bus does not have to stop at a set of traffic lights?

b) What is the probability that the bus arrives at school without having to stop at a set of traffic lights?

c) What is the probability that the bus stops at all sets of traffic lights?

d) The probability that the bus stops at a minimum of one set of lights?



The Prisoner's Dilemma

ANSWERS

Basic

- 2) a) 5 b) 25 c) 60 d) 100

3) First die

		1	2	3	4	5	6
Second die	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

- a) 1 b) 6 c) $\frac{1}{36}$ d) 7

Core

1) First die

		1	2	3	4	5	6
Second die	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

- a) 1 b) 6 c) $\frac{1}{36}$ d) 7

1) a)

Player	Games Won	Games Lost	Probability of Winning
Mark	4	10	$\frac{2}{7}$
James	7	3	$\frac{7}{10}$
Christine	4	6	$\frac{2}{5}$
Jamil	8	3	$\frac{8}{11}$
Natasha	7	7	$\frac{1}{2}$

- b) Jamil c) Jamil



The Prisoner's Dilemma

ANSWERS

Advanced

2) a)

Player	Games Won	Games Lost	Probability of Winning
Mark	4	10	$\frac{2}{7}$
James	7	3	$\frac{7}{10}$
Christine	4	6	$\frac{2}{5}$
Jamil	8	3	$\frac{8}{11}$
Natasha	7	7	$\frac{1}{2}$

b) Jamil

c) Jamil

2) a) $\frac{1}{4}$

b) $\frac{1}{64}$

c) $\frac{27}{64}$

d) $\frac{63}{64}$