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

Second die	1	2	3	4	5	6
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

Second die	1	2	3	4	5	6
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

Second die	1	2	3	4	5	6
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

Second die	1	2	3	4	5	6
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)** $\frac{63}{64}$