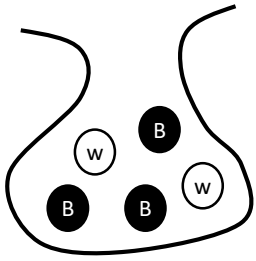


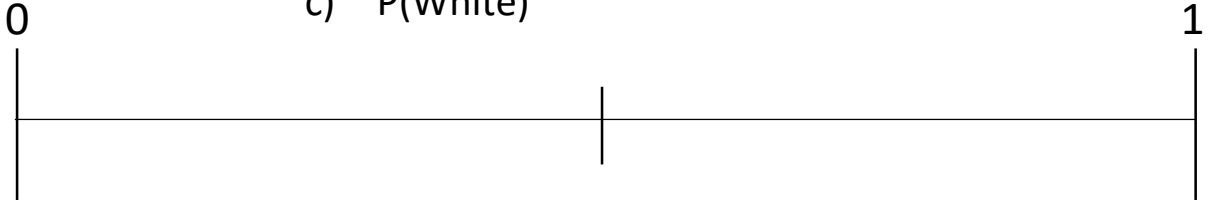
Probability



Five counters are placed into a bag, two are white and 3 are black.

1) Place the events onto the probability line.

- a) $P(\text{Black})$
- b) $P(\text{Yellow})$
- c) $P(\text{White})$



/3

2) Describe the probabilities of the following events in words.

a) It will snow in June.

b) Throwing a head on a fair coin

c) Rolling a 7 on a standard dice.

/3

June and George both have spinners June has the numbers 1 to 5 and George has the numbers 1 to 3. After spinning the spinners they calculate the sum of their values.



3) Complete the sample space diagram

	1	2	3	4
1				
2			5	
3		5		
4			7	
5				

/2

4) What is the probability of the total being greater than 6?

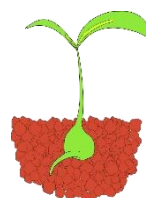
/2

5) Probability of the total being 1.

/1

6) The probability it will seed will grow is 0.6.

a) What is the probability of a seed **not** growing?



/1

b) If I plant 200 seeds what is the expected amount that will grow?

/2

7) I roll a fair dice what is the probability of me rolling a number that is

a) Even

/1

b) Not a multiple of 3

/1

8) If I roll a fair dice 150 times. What is the expected amount of 5's that I will land?

/2

Lina makes and rolls her own dice 300 times.

Rolled No.	1	2	3	4	5	6
Frequency	45	24	47	58	73	53



9) What is the relative frequency of rolling a 5 on Lina's dice?

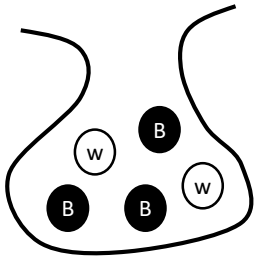
/2

10) Is Lina's dice fair? Explain your answer.

/3

Skill	Questions	Score	Available Marks
Worded Probability	2		3
Calculate the probability of an event happening	1,4,5,7a		7
Calculate the probability of an event not happening	6a, 7b		2
Completing a sample space diagram	3		2
Expected Probability	6b, 8		4
Relative Frequency	9		2
Reasoning about bias.	10		3
	Total Marks		

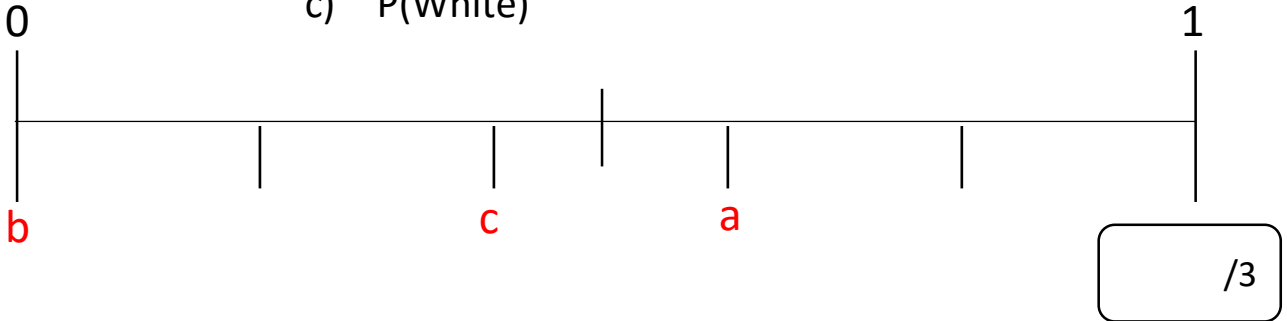
Answers Probability



Five counters are placed into a bag, two are white and 3 are black.

1) Place the events onto the probability line.

- a) P(Black)
- b) P(Yellow)
- c) P(White)



2) Describe the probabilities of the following events in words.

a) It will snow in June.

Very Unlikely

b) Throwing a head on a fair coin

Even Chance

c) Rolling a 7 on a standard dice.

Impossible

1/3

June and George both have spinners. June has the numbers 1 to 5 and George has the numbers 1 to 3. After spinning the spinners they calculate the sum of their values.



3) Complete the sample space diagram

1/2

4) What is the probability of the total being greater than 6?

$$P(x > 6) = \frac{6}{20} = \frac{3}{10}$$

1/2

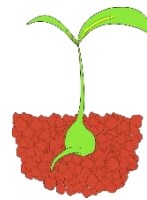
5) Probability of the total being 1.

$$P(\text{one}) = 0$$

1/1

	1	2	3	4
1	2	3	4	5
2	3	4	5	6
3	4	5	6	7
4	5	6	7	8
5	6	7	8	9

Answers



6) The probability it will seed will grow is 0.6.

a) What is the probability of a seed **not** growing?

$$P(\text{not growing}) = 1 - 0.6 = 0.4$$

/1

b) If I plant 200 seeds what is the expected amount that will grow?

$$\text{Expected} = 0.6 \times 200 = 120$$

120 seed are expected to grow.

/2

7) I roll a fair dice what is the probability of me rolling a number that is

a) Even $P(\text{Even}) = \frac{3}{6} = \frac{1}{2}$

/1

b) Not a multiple of 3

$$P(\text{Not Multiple of 3}) = \frac{4}{6} = \frac{2}{3}$$

/1

8) If I roll a fair dice 150 times. What is the expected amount of 5's that I will land?

$$\text{Expected} = \frac{1}{6} \times 150 = 25 \text{ fives are expected to be rolled.}$$

/2

Lina makes and rolls her own dice 300 times.

Rolled No.	1	2	3	4	5	6
Frequency	45	24	47	58	73	53



9) What is the relative frequency of rolling a 5 on Lina's dice?

$$\text{Relative Frequency} = \frac{73}{300}$$

/2

10) Is Lina's dice fair? Explain your answer.

No Lina's dice is not fair. It is biased because I would expect to land 50 times on each number. Instead it lands 73 times on a 5 and only 24 times on a 2.

/3

Skill	Questions	Score	Available Marks
Worded Probability	2		3
Calculate the probability of an event happening	1,4,5,7a		7
Calculate the probability of an event not happening	6a, 7b		2
Completing a sample space diagram	3		2
Expected Probability	6b, 8		4
Relative Frequency	9		2
Reasoning about bias.	10		3
	Total Marks		