Sample Space Diagrams
ANSWERS

Section A *Dice Probability*

1) Two fair dice are thrown and the scores are **ADDED** together.

- Complete the sample space diagram
- How many outcomes are there? 36
- What is the probability of getting a score of '5'? $\frac{4}{36} = \frac{1}{9}$
- What is the probability of getting a score greater than '9'? $\frac{6}{36} = \frac{1}{6}$
- What is the probability of getting a score less than '7'? $\frac{15}{36} = \frac{5}{12}$

	⚀	⚁	⚂	⚃	⚄	⚅
⚀	2	3	4	5	6	7
⚁	3	4	5	6	7	8
⚂	4	5	6	7	8	9
⚃	5	6	7	8	9	10
⚄	6	7	8	9	10	11
⚅	7	8	9	10	11	12

2) Two fair dice are thrown and the scores are **MULTIPLIED** together.

- Complete the sample space diagram
- How many outcomes are there? 36
- What is the probability of getting a score of '6'? $\frac{4}{36} = \frac{1}{9}$
- What is the probability of getting a score greater than '16'? $\frac{10}{36} = \frac{5}{18}$
- What is the probability of getting a score less than '4'? $\frac{5}{36}$

	⚀	⚁	⚂	⚃	⚄	⚅
⚀	1	2	3	4	5	6
⚁	2	4	6	8	10	12
⚂	3	6	9	12	15	18
⚃	4	8	12	16	20	24
⚄	5	10	15	20	25	30
⚅	6	12	18	24	30	36

3) A six-faced dice and a four-faced dice are thrown. The first score is **SUBTRACTED FROM** the second score.

- Complete the sample space diagram
- How many outcomes are there? 24
- What is the probability of getting a negative score? $\frac{14}{24} = \frac{7}{12}$
- What is the probability of getting a score ≥ 0? $\frac{10}{24} = \frac{5}{12}$

		First Score				
	⚀	⚁	⚂	⚃	⚄	⚅
Second Score ⚀	0	-1	-2	-3	-4	-5
⚁	1	0	-1	-2	-3	-4
⚂	2	1	0	-1	-2	-3
⚃	3	2	1	0	-1	-2

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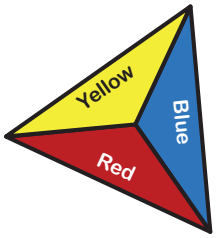
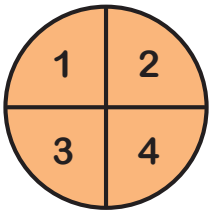
Section B

1) Jamie has two fair spinners.

One has three equal sections coloured red, blue and yellow. The other has four equal sections numbered 1, 2, 3 and 4. Jamie spins both spinners.

Complete the sample space diagram.





Colour	B	B	B	B	Y	Y	Y	Y	R	R	R	R
Number	1	2	3	4	1	2	3	4	1	2	3	4

2) A fair dice and a coin are thrown together.

a. Draw a sample space diagram to represent the possible outcomes.

	1	2	3	4	5	6
H	H1	H2	H3	H4	H5	H6
T	T1	T2	T3	T4	T5	T6

b. What is the probability of getting an even number and a tails?

$\frac{3}{12} = \frac{1}{4}$

3) A game is played using the counters inside two bags.
Bag 1 contains a green, purple and an orange counter.
Bag 2 contains 3 counters with the numbers 4, 5 and 6 on them.

a. Draw a sample space diagram to show all the possible outcomes when one counter is taken from each bag.

	Green	Purple	Orange
4	G4	P4	O4
5	G5	P5	O5
6	G6	P6	O6

b. What is probability of someone picking a green counter and the number 4?

$\frac{1}{9}$

c. Find the probability of taking an orange counter and a number greater than 4.

$\frac{2}{9}$