



THIRD SPACE
LEARNING

GCSE Exam Questions

Sample Space | Probability

GCSE Exam Questions: Sample Space

- 1) A weather report states that there is a 33% probability of rain.
What is the probability of it **not** raining?

(2 marks)

- 2) A bag contains 30 counters. 7 are red, 11 are green and the rest are blue or white.
There are twice as many blue counters as white counters.
A counter is selected at random.
Find the probability of selecting a white counter.

(3 marks)

- 3) A 4 sided spinner numbered 1, 2, 3 and 4 and a 3 sided spinner numbered 5, 7 and 9 are spun and the values on each added together.

- (a) Complete the sample space diagram to find the possible outcomes.

	1	2	3	4
5	6	7		
7	8			
9				

(2)

- (b) Find the probability that the sum of the values is prime.

(2)
(4 marks)

GCSE Exam Questions: Sample Space

- 4) A combination lock has three dials each numbered 1, 2 and 3.



John has forgotten his combination but he remembers that exactly two of the numbers are the same.

- (a) Write a list of the possible combinations.

(3)

- (b) Find the probability of the combination numbers having a sum of 5.

(2)
(5 marks)

GCSE Exam Questions: Sample Space Answers

	Question	Answer	Marks																																								
1)	A weather report states that there is a 33% probability of rain. What is the probability of it not raining?	100% - 33% or 1 - 0.33 67% or 0.67 oe	(1) (1)																																								
2)	A bag contains 30 counters. 7 are red, 11 are green and the rest are blue or white. There are twice as many blue counters as white counters. A counter is selected at random. Find the probability of selecting a white counter.	$12 \div (2 + 1)$ Finding that there are 8 blue or 4 white counters $\frac{4}{30}$ oe	(1) (1) (1)																																								
3)	A 4 sided spinner numbered 1, 2, 3 and 4 and a 3 sided spinner numbered 5, 7 and 9 are spun and the values on each added together.																																										
(a)	Complete the sample space diagram to find the possible outcomes. <table border="1"><thead><tr><th></th><th>1</th><th>2</th><th>3</th><th>4</th></tr></thead><tbody><tr><th>5</th><td>6</td><td>7</td><td></td><td></td></tr><tr><th>7</th><td>8</td><td></td><td></td><td></td></tr><tr><th>9</th><td></td><td></td><td></td><td></td></tr></tbody></table>		1	2	3	4	5	6	7			7	8				9					(a) 3 more values are filled in Table complete with correct values <table border="1"><thead><tr><th></th><th>1</th><th>2</th><th>3</th><th>4</th></tr></thead><tbody><tr><th>5</th><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><th>7</th><td>8</td><td>9</td><td>10</td><td>11</td></tr><tr><th>9</th><td>10</td><td>11</td><td>12</td><td>13</td></tr></tbody></table>		1	2	3	4	5	6	7	8	9	7	8	9	10	11	9	10	11	12	13	(1) (1)
	1	2	3	4																																							
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9	10	11	12	13																																							
(b)	Find the probability that the sum of the values is prime.	(b) Finds the prime numbers 7, 11, 13 or uses 4 as the numerator $\frac{4}{12}$ oe	(1) (1)																																								

GCSE Exam Questions: Sample Space Answers

	Question	Answer	Marks																		
4)	A combination lock has three dials each numbered 1, 2 and 3.  John has forgotten his combination but he remembers that exactly two of the numbers are the same.																				
(a)	Write a list of the possible combinations.	(a) Evidence of starting to list combinations using with 1,1,.. 2,2,.. 3,3,.. At least 12 different combinations All 18 correct combinations <table><tr><td>1,1,2</td><td>2,2,1</td><td>3,3,1</td></tr><tr><td>1,2,1</td><td>2,1,2</td><td>3,1,3</td></tr><tr><td>2,1,1</td><td>1,2,2</td><td>1,3,3</td></tr><tr><td>1,1,3</td><td>2,2,3</td><td>3,3,2</td></tr><tr><td>1,3,1</td><td>2,3,2</td><td>3,2,3</td></tr><tr><td>3,1,1</td><td>3,2,2</td><td>2,3,3</td></tr></table>	1,1,2	2,2,1	3,3,1	1,2,1	2,1,2	3,1,3	2,1,1	1,2,2	1,3,3	1,1,3	2,2,3	3,3,2	1,3,1	2,3,2	3,2,3	3,1,1	3,2,2	2,3,3	(1) (1) (1)
1,1,2	2,2,1	3,3,1																			
1,2,1	2,1,2	3,1,3																			
2,1,1	1,2,2	1,3,3																			
1,1,3	2,2,3	3,3,2																			
1,3,1	2,3,2	3,2,3																			
3,1,1	3,2,2	2,3,3																			
(b)	Find the probability of the combination numbers having a sum of 5.	(b) A fraction with a numerator 6 or a denominator 18 $\frac{6}{18}$ oe	(1) (1)																		

Where to go next?

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