

Check out**You should now be able to ...**

✓ Evaluate uncertainty and risk in real situations.	7	1
✓ Identify and calculate probabilities for independent events.	8	2, 3
✓ Use tree diagrams to calculate probabilities.	8	4, 5
✓ Calculate probabilities from experimental data.	7	6
✓ Calculate probabilities using a Venn diagram.	8	7

Test it**Questions**

- Jon pays £5 per month to insure his mobile phone against being stolen. It would cost £240 to replace if he did not have insurance.
 - How often would Jon have to have a phone stolen in order to save money?
 - What are the advantages and disadvantages of taking the insurance?
- Are these two events independent?
A: the weather being rainy
B: a person buying ice-cream
- The probability that a person chosen at random in a shop is female is 0.8. Half the people in the shop have brown hair. Assuming these attributes are independent, what is the probability that a person chosen at random in a shop is a man with brown hair?
- The probability of a particular type of bulb flowering is 85%. Two bulbs are planted.
 - Draw a tree diagram to show all the possible outcomes.
 - What is the probability that both bulbs flower?
 - What is the probability that exactly one bulb flowers?
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- 5 The probability of a woman giving birth to a boy is 0.51. A woman has two children. Assuming their genders are independent
 - draw a tree diagram to show the possible outcomes
 - calculate the probability of her having a boy and a girl
 - calculate the probability of her having at least one girl.
- Aidan is practising golf on a putting green. He records how many shots he took per hole.

2	3	1	2	2
4	2	3	4	1
2	1	2	3	3

 - What is the relative frequency of 1s?
 - Estimate the probability that he will take two shots on the next hole
 - If Aidan played another 10 holes, how many times would you expect him to require more than 2 shots per hole?
- An integer is chosen at random from the numbers 1 to 20.

A = {multiples of 5}
B = {triangular numbers}

 - Draw a Venn diagram to illustrate the situation.
 - Show that events A and B are not independent.

**Language Meaning Example**

Independent events	Two events which have no effect on each other.	Passing your maths exam and it being a wet day could be independent events
Mutually exclusive	Two events that cannot happen at the same time.	'Toss a coin and get a head' and 'Toss a coin and get a tail'
Simulation	Using a random number generator of other software to represent an experiment.	Using your calculator random number generator to predict numbers of people in a queue.
Proper subset	B is a proper subset of A if every element of B is contained in A.	If $A = \{1, 2, 3\}$ and $B = \{1, 2\}$ Then $B \subset A$

What next?

Score	0 - 3	4 - 6	7
	Your knowledge of this topic is still developing. To improve look at Formative test: 3C-16; MyMaths: 1208, 1264, 1922 and 1935	You are gaining a secure knowledge of this topic. To improve look at InvisiPen: 463, 464, 465, 476 and 477	You have mastered this topic. Well done, you are ready to progress!