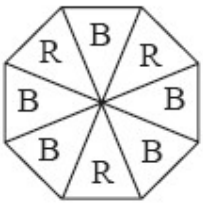
Routine Probability #6

1. A spinner is made with the shape shown on the right.



   a) Find the probability of getting a B with one spin.

   b) Find the probability of getting a B twice with two spins?

2. Two spinners with five equal sides, as shown, are spun together.

   a) How many different results are possible?

   b) How many different ways can a total of 4 be scored?

   c) Bill says that there are two ways of getting a total of four (either a 3 and a 1 or two 2s) and also two ways of getting a total of five (either a 1 and a 4 or a 2 and a 3), so they are equally likely to happen. Explain why it is more likely that a total of five will be scored on any two spins added together than a total of four.

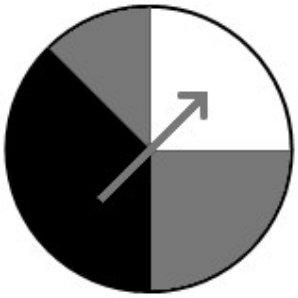
3. The statistics about some of the Social Science options taken at a school at Year 11.

	History	Geography	Economics	No SS	Totals
Boys	22	25	28		110
Girls	19	30	15		105
Totals					

   a) What is the probability that a randomly selected student does Geography?

   b) What is the probability that an Economics student is a boy?

4. A spinner dial divided into uneven sections is shown:



   a) What is the probability that a spin lands on white?

   b) What is the probability that a spin lands on grey?

   c) What is the probability a spin is on either black or grey?

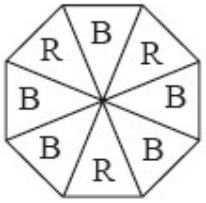
   d) What is the probability that with two spins **both** are black?

5. In a jar there are an equal number of yellow lollies and red lollies.

   What is the probability that in three random draws, putting them back after they are taken out, at least two lollies drawn are yellow?

Answers : Routine Probability #6

1. A spinner is made with the shape shown on the right.

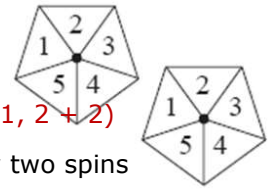


   a) Find the probability of getting a B with one spin. $\frac{5}{8}$ (or 62.5%)

   b) Find the probability of getting a B twice with two spins?

   Two separate events, so we multiply the probabilities $\frac{5}{8} \times \frac{5}{8} = \frac{25}{64}$ (or 39.06%)

2. Two spinners with five equal sides, as shown, are spun together.



   a) How many different results are possible? $5 \times 5 =$ **25**

   b) How many different ways can a total of 4 be scored? **3** (1 + 3, 3 +1, 2 + 2)

   c) Explain why it is more likely that a total of five will be scored on any two spins added together than a total of four.

   Because there is only one way to get a 4 from double 2's, but two ways to get each of the other results because, four example: 3 + 2 can also be done as 2 + 3. So there are only three ways to get 4, but four ways to get 5.

   Imagining the spinners are different colours can help

   4 = 1 + 3, 3 +1 and 2 + 2 but 5 = 2 + 3, 3 +2, 4 + 1 and 1 + 4

3. The statistics about some of the Social Science options taken at a school at Year 11.

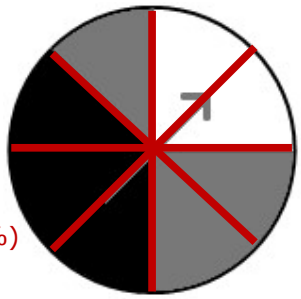
	History	Geography	Economics	No SS	Totals
Boys	22	25	28		110
Girls	19	30	15		105
Totals	41	55	43		215

   a) What is the probability that a student does Geography? $\frac{55}{215}$ (or 2558%)

   b) What is the probability that an Economics student is a boy? Only looking at ECO

   Of the 43 doing ECO, 28 are boys, so $\frac{28}{43}$ (or 65.11%)

4. Divide the spinner into **eight** even sections is shown:



   a) What is the probability that a spin lands on white? $\frac{2}{8}$ (or 25%)

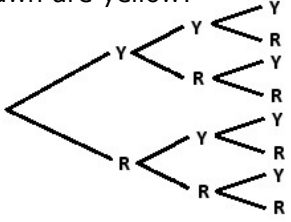
   b) What is the probability that a spin lands on grey? $\frac{3}{8}$ (or 37.5%)

   c) What is the probability a spin is on either black or grey? $\frac{3}{4}$ (or 75%)

   d) What is the probability that with two spins **both** are black?

   Two separate events, so we multiply probabilities: $\frac{3}{8} \times \frac{3}{8} = \frac{9}{64}$ (or 14.06%)

5. In a jar there are an equal number of yellow lollies and red lollies. What is the probability that in three random draws, putting them back after they are taken out, at least two lollies drawn are yellow?



   The tree diagram shows there are eight possible outcomes

   Each is $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$ and 4 have at least two yellows

   So answer is $\frac{4}{8} = \frac{1}{2}$ (or 50%)