

Basic Probability #9

1. A bag contains black, grey and white marbles, as shown: ●○○●●○○○○○○●●
- What is the probability that a random draw will be a black marble?
 - What is the probability that a random draw will not be a grey marble?
 - What is the probability that a random draw will be a grey or black marble?
 - What is the probability that if two random draws are made (putting the marbles back between draws) that both draws will be grey marbles?

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

	History	Geography	Economics	Totals
Boys	22	25	28	
Girls	19	30	15	
Totals				

- What is the probability that a randomly selected student does Geography?
 - What is the probability that a boy does Economics?
3. Billy is in Year 13. His timetable is divided as follows:

Calculus	Chemistry	Physics	English	RE	Free	PE
4	4	4	4	4	2	3

- What is the probability a randomly selected period is a free period?
 - If you know he isn't in English or RE what is the probability he has a free period?
4. Billy has some coins in a jar. He closes his eyes, and picks them at random:
The probability he picks a 50 cent piece is 0.32.
He knows there are eight 50 cent coins in the jar. How many other coins must there be?
5. Acrefield College is a co-ed school (has both boys and girls). It has 80 Year 9 boys and 75 Year 9 girls. 20 of those boys play football, and 15 of those girls play football.
- What is the probability a randomly selected Year 9 plays football?
 - If we know a Year 9 student plays football, what is the probability it is a boy?

Basic Probability #9

1. A bag contains black, grey and white marbles, as shown: ●○○●○○○○○○●●

- What is the probability that a draw will be a black marble? $\frac{4}{12}$ or $\frac{1}{3}$ (or 33.33%)
- What is the probability that a draw will not be a grey marble? $\frac{10}{12}$ or $\frac{5}{6}$ (or 83.33%)
- What is the probability that a draw will be a grey or black marble? $\frac{6}{12}$ or $\frac{1}{2}$ (or 50%)
- What is the probability that if two random draws are made (putting the marbles back between draws) that both draws will be grey marbles?

Separate events, so we multiply probabilities: $\frac{2}{12} \times \frac{2}{12} = \frac{1}{36}$ (= 2.78%)

2. 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

- What is the probability that a student does Geography? $\frac{55}{215}$ (or 25.58%)
- What is the probability that a boy does Economics? $\frac{28}{110}$ (or 25.45%)

3. Billy is in Year 13. His timetable is divided as follows:

Calculus	Chemistry	Physics	English	RE	Free	PE
4	4	4	4	4	2	3

- What is the probability a randomly selected period is a free period? $\frac{2}{25}$ (or 8%)
- He isn't in English or RE what is the probability he has a free period? $\frac{2}{17}$ (or 11.76%)

4. Billy has some coins in a jar. He closes his eyes, and picks them at random:

The probability he picks a 50 cent piece is 0.32.

He knows there are eight 50 cent coins in the jar. How many other coins must there be?

We know that picking the eight 50c out of the total is 0.32 probability.

Putting that into Maths: $\frac{8}{x} = 0.32$ Guess and check shows $x = 25$ coins total

So there are **17 other coins**.

5. Acrefield College is a co-ed school (has both boys and girls). It has 80 Year 9 boys and 75 Year 9 girls. 20 of those boys play football, and 15 of those girls play football.

- What is the probability a random Year 9 plays football? $\frac{20}{80}$ or $\frac{1}{4}$ (or 25%)
- If we know a Year 9 student plays football, what is the probability it is a boy?

There are 35 who play football, of whom 20 are boys, so: $\frac{20}{35}$ or $\frac{4}{7}$ (or 57.14%)