

Probability Revision

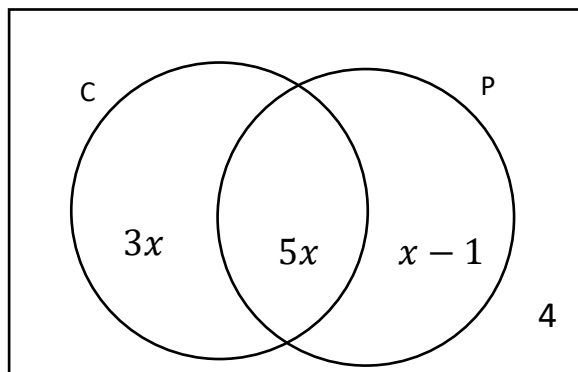
- 1) The probability that it will not snow on a given day is 11 times the probability that it will snow on a given day. Find the expected number of days that it would snow for in a month of 30 days.
- 2) In a bag there are 12 green and 3 red balls. I draw two out at random, find the probability that I draw two balls out of a different colour.
- 3) Now find the probability that at least one ball drawn was red.
- 4) A password is made using four letters and then a number from 0-9.
How many different passwords can be made?
- 5) You are allowed to take an exam 3 times. 60% of the people taking the exam pass each time. How many people from 50 would you expect to pass the exam?
- 7) A spinner numbered 1,1,2,2,3 is spun and a regular die is rolled. The scores are added together.

Find the probability that the score will be greater than 7.
- 8) In an upper 6th form of 25 people, there are 11 girls and 13 people that study maths. There are 6 boys that don't study maths.
 - a) Draw a Venn representing girls and people studying maths.
 - b) I pick a student at random, given that they are a girl, find the probability that they study maths
- 9) $\xi = \{1,2,3,4,5,6\}$ $A = \{3, 5\}$ $B = \{\text{primes}\}$ $C = \{\text{evens}\}$
 $D = \{2,4,5\}$

Find a) $A \cap D'$ b) $B \cup D$ c) $B \cap D$ d) $(B \cap C') \cup D'$
- 10) A meal deal consists of a sandwich (chicken, cheese or falafel) , drink (water or tea) and snack (crisps or biscuits). How many different meal deals are there?
- 11) Harry and Tracy take part in a game show. First Tracy is asked a question. Then a coin is tossed, if it comes down heads, Harry answers, if it comes

down tails, Tracy answers. Harry has a 0.6 chance of getting a question right, Tracy has a 0.75 chance of getting it right. They have to answer at least one question right to go through to the next round. Find the probability of this.

- 12) The Venn diagram below shows if 30 pieces of homework are **Complete** or **Presented well**:



- a) Find the probability that a piece of homework is not complete, but is presented well
- b) Given that a randomly chosen piece of homework is not presented well, find the probability that it is complete

- 13) I stand on Clothholme Road and count the cars going past, noting their colour:

Black	Red	Silver	Blue	Yellow	Green	White
12	8	1	2	3	8	6

- a) Find an estimate for the probability of the next car passing being yellow
- b) If there are 20,000 cars in Ripon, estimate how many would be black
- 14) In a volleyball team of 4 players, there must be 2 male and 2 female players. There are 13 boys and 9 girls in the squad. How many different teams can be made?
- 15) I shoot at 3 targets with a BB gun. When there are 3 standing, there is a 50% chance I hit one. When there are 2 standing, there is a 20% chance I hit one. When there is only one standing, there is a 10% chance I hit one. I take three shots, find the probability that I hit at least 2 targets.
- 16) $\xi = \{1,2,3,4,5,6,7,8\}$ $A = \{2,3,6,7\}$ $B = \{1,3,5\}$ $C = \{5,6,7,8\}$
- a) Find $A' \cup B$
- b) Find $n(A \cap C)$
- 17) On a random day in November, it is 4 times as likely to be raining as not. Find the probability that it rains for 3 days in a row.

Ans 1) 2.5 days 2) $\frac{12}{35}$ 3) $\frac{13}{35}$ 4) 4,569,760 5) 46.8 (so around 47 people)
7) $\frac{2}{15}$ 8a) sections are 6,5,8,6 b) $\frac{5}{11}$ 9a) 3 b) 2,3,4,5 c) 5 d) 1,3,5,6
10) 12 11) 0.91875 12a) $\frac{1}{15}$ b) $\frac{9}{13}$ 13a) $\frac{3}{40}$ b) 6000 14) 11232
15) 23% 16a) 1,3,4,5 b) 2 17) 51.2%