

MDM4U – Probability and Odds Assessment

1. At an international software conference held in Paris, France, a survey was conducted of the delegates who attended from England, France and Germany.
 - 169 spoke English
 - 143 spoke French
 - 111 spoke German
 - 77 spoke English and German
 - 99 spoke English and French
 - 58 spoke French and German
 - 35 spoke English, French, and German

- a) Organize the information into a Venn diagram [4]

- b) What is the probability that a randomly selected delegate speaks only French? [2]

- c) If a randomly selected delegate speaks German, what is the probability that the delegate also speaks French? [2]

- d) What is the probability that a randomly selected delegate speaks neither French nor English? [2]

2. Using a regular deck of cards, find:
 - a) The probability of drawing an ace [2]
 - b) The probability of drawing a heart [2]
 - c) The probability of drawing a card that is not a heart [2]
 - d) What are the odds of having all hearts if you are dealt 5 cards? [3]

3. What are the odds against rolling a 7 or 11 using a standard pair of dice? [3]
4. A group of environmental scientists from the University of British Columbia consists of 7 biologists and 4 ecologists. For the upcoming international environmental conference, a panel of 5 UBC scientists will be selected at random to attend. What is the probability that 3 biologists and 2 ecologists are selected? [3]
5. A computer expert estimates that the odds of a chess grand master defeating the latest chess-playing computer are 4:5. What is the probability that the chess master will win a match against the computer? [3]