

## MORE PROBABILITY

1. Nathan has 4 cards, each showing one of the digits 1, 2, 3, 4. If he lays 3 of the cards down to form a three digit number, what is the probability of the number being
  - (i) Even?
  - (ii) Divisible by 4?
  - (iii) Less than 120?
  - (iv) Greater than 230?
  
2. Greg bought two tickets in a raffle in which 1000 tickets were sold. What is the probability that Greg will win
  - (i) First prize
  - (ii) First and second prize
  - (iii) Second prize
  - (iv) No prize
  - (v) Explain why answers (i) + (ii) + (iii) + (iv) = 1
  
3. A family has 4 children. What is the probability that
  - (i) All 4 are girls?
  - (ii) There are 2 girls?
  - (iii) At least one is a girl?
  - (iv) There are no girls?
  
4. In a class of 28 students, 14 have chosen soccer for sport, 8 have chosen tennis and 6 have chosen softball. If two students are chosen at random from the class, what is the probability that
  - (i) They both play tennis?
  - (ii) One plays tennis and one plays soccer?
  - (iii) Neither plays tennis?
  
5. A bag contains 5 red marbles, 3 white marbles and two blue marbles. If two marbles are drawn from the bag at random, what is the probability that
  - (i) The first marble drawn is blue?
  - (ii) The first marble drawn is white?
  - (iii) Both the first and second marbles drawn are white?
  - (iv) Both marbles are red?
  - (v) Neither marble is white?

**Answers:**

1. (i)  $\frac{1}{2}$  (ii)  $\frac{1}{4}$  (iii) 0 (iv)  $\frac{2}{3}$

2. (i)  $\frac{1}{500}$  (ii)  $\frac{1}{499500}$  (iii)  $\frac{1}{500}$  (iv)  $\frac{497503}{499500}$  (v) Answers (i) to (iv)  
represent all possible outcomes.  
All possible outcomes add to 1.

3. (i)  $\frac{1}{16}$  (ii)  $\frac{3}{8}$  (iii)  $\frac{15}{16}$  (iv)  $\frac{1}{16}$

4. (i)  $\frac{2}{27}$  (ii)  $\frac{8}{27}$  (iii)  $\frac{95}{196}$

5. (i)  $\frac{1}{5}$  (ii)  $\frac{3}{10}$  (iii)  $\frac{1}{15}$  (iv)  $\frac{2}{9}$  (v)  $\frac{7}{15}$