Tree diagrams

**Question 1**  A coin is tossed three times and the results noted. Use a tree diagram to find the probability of:

a  three heads

b  two heads and one tail in any order

c  at least one head

**Question 2**  There are four cards marked with the numbers 1, 2, 3 and 4. They are put in a box. Two cards are selected at random, one after the other, to form a two-digit number. Draw a tree diagram to find:

a  how many different two-digit numbers can be formed

b  the probability that the number formed is less than 34

c  the probability that the number formed is divisible by 3

d  the probability that the number formed is even

**Question 3**  Three red balls and two blue balls are placed in a bag. Two balls are selected at random, without replacement. What is the probability of having:

a  two red balls?

b  two blue balls?

c  one red ball and one blue ball?

**Question 4**  In a family of three children, use a tree diagram to find the probability of:

a  three boys

b  two boys and one girl

c  one boy and two girls

d  the eldest child being a boy

e  the youngest child being a girl

f  three girls
Probability trees

**Question 1**  A box contains 4 yellow and 5 black balls. A ball is drawn from the box and is not replaced, then a second ball is drawn. Find the probability of:

a. yellow then black being drawn  

b. black then yellow being drawn  

c. both balls being yellow  

d. both balls being black  

e. drawing yellow and black in any order  

**Question 2**  Diana has a box containing three red and two green marbles. She selects two marbles at random. Find the probability of two green marbles if she replaces the first marble before she draws the second.

**Question 3**  Roger buys three tickets in a raffle in which there is a total of 20 tickets. There are two prizes. Find the probability of him winning:

a. first prize  

b. first prize only  

c. both prizes  

d. no prizes  

e. at least one prize  

f. one prize only  

**Question 4**  A jar contains five white and six red jelly beans. Kylie takes a bean at random and eats it. She then takes another jelly bean and eats it. What is the probability that:

a. the first bean eaten is white  

b. the two beans eaten are both red  