COUNTING & PROBABILITY (Q 6, PAPER 2)

2011

6. (a) (i) Find 4!

(ii) Simplify $\dfrac{6(5!)}{5(4!)}$.

(b) The letters in the word FERMAT are arranged taking all of the letters each time. How many different arrangements are possible if

(i) there are no restrictions

(ii) the arrangements begin with the letter F

(iii) the arrangements begin with the letter F and end with a vowel

(iv) the two vowels are together?

(c) The table below shows how the students in a school usually travel to school.

	Walk	Cycle	Other
Boys	157	123	166
Girls	184	91	172

(i) A student is picked at random.
What is the probability that the student is a boy?

(ii) A student is picked at random.
What is the probability that the student walks to school?

(iii) A boy is picked at random.
What is the probability that he cycles to school?

(iv) A girl is picked at random.
What is the probability that she does not walk to school?

ANSWERS
6   (a) (i) 24   (ii) 6
      (b) (i) 720   (ii) 120   (iii) 48   (iv) 240
      (c) (i) $\frac{446}{893}$ (ii) $\frac{341}{893}$ (iii) $\frac{123}{446}$ (iv) $\frac{263}{447}$