**2014 SM4 Week 1 Investigation**

Task 1

A secretary types four letters to four people and addresses the four envelopes. If she inserts the letters at random, each in a different envelope, what is the probability that exactly three letters will go into the right envelope?

Provide an explanation of your answer.

Task 2

**An anecdote: Linus Pauling's Argument**

*On the occasion of his receiving second Nobel prize, Dr. Linus Pauling, the chemist, remarked that, while the chances of any person in the world receiving his first Nobel prize were one in several billion (the population of the world), the chances of receiving the second Nobel prize were one in several hundred (the total number of living people who had received the prize in the past) and that therefore it was less remarkable to receive one's second prize than one's first.*

What is the flaw in Professor Pauling's joke?