13	11c	An examination has 10 multiple-choice questions, each with 4 options. In each question, only one option is correct. For each question a student choose one option at random. Write an expression for the probability that the student chooses the correct option for exactly 7 questions.	2

State Mean: **1.61/2**

Let p = P(incorrect) = $\frac{3}{4}$

Let q = P(correct) = $\frac{1}{4}$

As $(p+q)^{10} = \ldots + {}^{10}C_7\, p^3 q^7 + \ldots$

P(7 correct, 3 incorrect) = ${}^{10}C_7\, p^3 q^7$

$$= \binom{10}{7}\left(\frac{3}{4}\right)^3\left(\frac{1}{4}\right)^7$$

* These solutions have been provided by *projectmaths* and are not supplied or endorsed by the Board of Studies

Board of Studies: Notes from the Marking Centre

Most candidates found the correct expression for the binomial term required.

A common problem was:

- confusing 'success' and 'failure', assigning the wrong index to each probability.

Source: **http://www.boardofstudies.nsw.edu.au/hsc_exams/**