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12	13c	Two buckets each contain red marbles and white marbles. Bucket A contains 3 red and 2 white marbles. Bucket B contains 3 red and 4 white marbles. Chris randomly chooses one marble from each bucket.	
		(i)　　What is the probability that both marbles are red?	**1**
		(ii)　　What is the probability that at least one of the marbles is white?	**1**
		(iii)　　What is the probability that both marbles are the same colour?	**2**

(i)　　$P(RR) = \dfrac{3}{5} \times \dfrac{3}{7}$

　　　　　$= \dfrac{9}{35}$

(ii)　　P(at least one white)

　　　　　$= 1 - P(RR)$

　　　　　$= 1 - \dfrac{9}{35}$

　　　　　$= \dfrac{26}{35}$

(iii)　　P(both same colour)

　　　　　$= P(RR) + P(WW)$

　　　　　$= \dfrac{3}{5} \times \dfrac{3}{7} + \dfrac{2}{5} \times \dfrac{4}{7}$

　　　　　$= \dfrac{17}{35}$

State Mean:
0.89/1
0.68/1
1.61/2

* 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

(i) This part was answered well.

(ii) In better responses, candidates recognised that this question followed from part (i) and correctly calculated the complement of $P(RR)$. In responses that required $P(WR)$, $P(RW)$ and $P(WW)$ to be added together, many candidates misinterpreted 'at least one' and omitted $P(WW)$ from their addition.

(iii) This part was generally done well. The most common error was to calculate $P(RR) \times P(WW)$ rather than $P(RR) + P(WW)$.

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