Marked example 2

Paper 1 style · No calculator

2 6 marks SL 4.6 · 4.11 ●●○ Typical

A bag contains 5 red counters and 3 blue counters. Two counters are taken at random, one after the other, without replacement.

(a) Find the probability that both counters are red. [2]

(b) Find the probability that the two counters are different colours. [2]

(c) Given that the counters are different colours, find the probability that the first one is red. [2]

MARKSCHEME (a)

$\frac{5}{8} \times \frac{4}{7}$

$= \frac{20}{56} = \frac{5}{14}$

(M1)

A1

Total 2 marks

MARKSCHEME (b)

$\frac{5}{8} \times \frac{3}{7} + \frac{3}{8} \times \frac{5}{7}$

$= \frac{30}{56} = \frac{15}{28}$

(M1)

A1

Total 2 marks

Note Two paths: red then blue, blue then red.

MARKSCHEME (c)

$\frac{15/56}{30/56}$

$= \frac{1}{2}$

(M1)

A1

Total 2 marks

Note $P(\text{first red} \cap \text{different}) \div P(\text{different})$.

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