Exercise 2

Paper 1 style · No calculator

2 6 marks SL 4.6 · 4.11 ●●○ Typical

A box contains 4 green sweets and 6 yellow sweets. Two sweets are taken at random, one after the other, without replacement.

(a) Find the probability that both sweets are green. [2]

(b) Find the probability that the two sweets are the same colour. [2]

(c) Given that the sweets are the same colour, find the probability that they are both green. [2]

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$$\frac{4}{10} \times \frac{3}{9}$$
$$= \frac{12}{90} = \frac{2}{15}$$

(M1)

A1

Total 2 marks

MARKSCHEME (b)

$$\frac{4}{10} \times \frac{3}{9} + \frac{6}{10} \times \frac{5}{9}$$
$$= \frac{42}{90} = \frac{7}{15}$$

(M1)

A1

Total 2 marks

Note Two paths: green then green, yellow then yellow.

MARKSCHEME (c)

$$\frac{2/15}{7/15}$$
$$= \frac{2}{7}$$

(M1)

A1

Total 2 marks

Note $P(\text{both green}) \div P(\text{same colour})$.