

Past-paper walk-through

Conditional probability ■ E8.4

eXercise

Questions in this set

- 0580/21 N25 Q20 ■ 16 marks
- 0580/23 N25 Q11 ■ 1 mark
- 0580/21 J25 Q17 ■ 7 marks

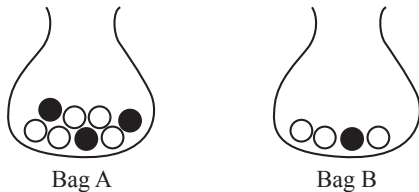
Reading the mark scheme

- **B1** a mark that stands on its own – the point is either made or not.
- **M1** a *method* mark: the right approach, even if the number is wrong.
- **A1** an *answer* mark, and it usually needs its M mark first.
- **C1** a working mark on the way to the answer.
- **//** separates answers the examiner accepts equally.
- **ecf** = error carried forward: a later part is marked on your own earlier answer.
- **owtte** = “or words to that effect” – the wording need not match.

Question 20

0580/21 N25 ■ Q20 ■ 16 marks

20



Bag A contains 5 white balls and 3 black balls.

Bag B contains 3 white balls and 1 black ball.

(a) Two balls are picked at random from bag B without replacement.

Question 20

Find the probability that both balls are black.

Question 20

- (b) The balls are replaced into bag B.
Kyle picks a ball at random from each bag.

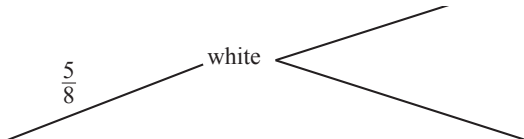
- (i) Complete the tree diagram.

Bag A

Bag B

white

Question 20



Question 20



white

Question 20



Question 20



[2]

- (ii) Find the probability that the two balls are the same colour.

Question 20

- (c) The balls are replaced into their bags.
Jo picks a ball at random from bag A and places it into bag B.
She then picks a ball at random from bag B.

Find the probability that she picks a black ball from bag B.

Question 20

Solution 20

(a)**Mark scheme**

- 0
- 1

Solution 20

(b)(i)**Mark scheme**

- 2 B1 for $3/8$ or for 3
- 4
- and $1/4$ correctly placed on the
- same pair of branches

Solution 20

(b)(ii) Mark scheme

- 18
- 32
- oe
- 3 M2 for $5/3$
- 3
- 1
- 8
- 4

Solution 20

- 8
- 4
- $\times$
- $+$
- $\times$
- their
- their
- their
- oe
- or M1 for one correct branch e.g.

Solution 20

- 5
- 3
- 8
- 4
- their
- $\times$
- or
- 3
- 1
- 8

Solution 20

- 4
- their
- their
- ×
- oe

Solution 20

(c) Mark scheme

- 11
- 40 oe
- 3 M2 for 5/1
- 3
- 2
- 8
- 5
- 8

Solution 20

- 5
- $\times$
- +
- $\times$
- oe
- or M1 for one product of the form
- 5
- 3
- or
- 8

Solution 20

- 5
- 8
- 5
- $\times$
- $\times$
- k
- k oe ($k = 1, 2, 3$ or 4)

Question 11

0580/23 N25 ■ Q11 ■ 1 mark

11 Sarah rolls a fair 6-sided dice twice.

Find the probability she rolls a number greater than 4 both times [2] 12 (a) Write down the value of 730 [1]

(b) Find the value of $3 \times 7 \times 2$

2

(c) Write 27 812

in the form $3n \times 2$, ,

[1]

Solution 11

- 1
- 11
- 1
- 9 oe
- 2 M1 for $2/2$
- 6
- 6
- $\times$

Solution 11

■ oe

Question 17

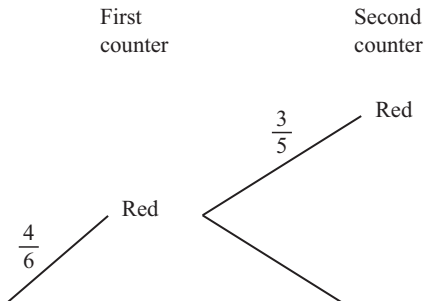
0580/21 J25 ■ Q17 ■ 7 marks

- 17 (a)** A bag contains 6 red marbles, 3 green marbles and 1 blue marble.
Two marbles are picked at random from the bag **with replacement**.

Find the probability that both marbles are green.

Question 17

- (b) Another bag contains 4 red counters and 2 yellow counters.
Two counters are picked at random from this bag **without replacement**.
- (i) Complete the tree diagram.



Question 17

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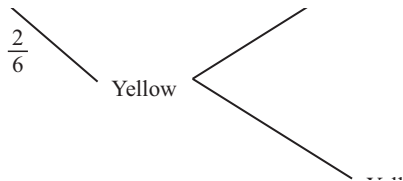
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Question 17



. Red

Question 17



Question 17

[2]

- (ii) Find the probability that one of the two counters is yellow.

Question 17

-

Solution 17

(a)

Mark scheme

- 9
- 100 oe
- 2 M1 for 3
- 10×3
- 10

Solution 17

(b)(i) Mark scheme

- 2
- 5
- 4
- 5
- 1
- 5
- 2 B1 for 2/5

Solution 17

(b)(ii) Mark scheme

- 16
- 30 oe
- 3 3FT their tree diagram dep on probabilities < 1
- M2FT for 4
- 6×2
- $5 + 2$
- 6×4
- 5

Solution 17

- or M1FT for 4
- 6×2
- 5 or for 2
- 6×4
- 5