

Past-paper walk-through

Introduction to probability ■ E8.1

eXercise

Questions in this set

- 0580/22 N25 Q12 ■ 7 marks
- 0580/23 N25 Q25 ■ 4 marks
- 0580/43 N25 Q12 ■ 2 marks
- 0580/22 J25 Q4 ■ 2 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 12

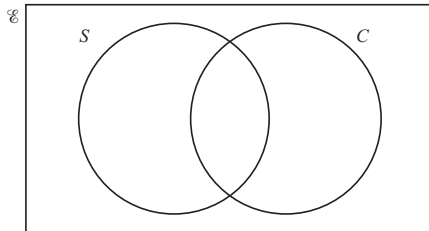
0580/22 N25 ■ Q12 ■ 7 marks

12 A fitness club has 100 members.

60 swim (S).

70 cycle (C).

25 do not swim or cycle.



Question 12

- (a) Complete the Venn diagram.

Question 12

[3]

- (b)** One member of the fitness club is chosen at random.

For this member, find

- (i)** $P(C)$

Question 12

(ii) $P(S \cap C)$

Question 12

(iii) $P(S \cup C')$.

Question 12

Solution 12

(a) Mark scheme

- or
- 3 If values placed: **B2**
- for 55 correctly placed
- OR **B1**
- for 25 correctly placed **M1**
- for total $S = 60$ and total $C = 70$ with
- intersection not equal zero/not blank
- OR

Solution 12

- Alt method if probabilities placed: (B2)
- for 0.55 oe correctly placed
- OR (B1)
- for 0.25 oe correctly placed (M1)
- for total $S = 0.6$ and total $C = 0.7$
- with intersection not equal zero/not blank

Solution 12

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

- 70
- 100 oe
- 1

Solution 12

(b)(ii) Mark scheme

- 55
- 100 oe
- 1 FT
- 55
- 100
- their
- from their Venn diagram

Solution 12

(b)(iii) Mark scheme

- 85
- 100 oe
- 1 FT
- 25
- 5
- 55
- 100
- their

Solution 12

- their
- their
- +
- +
- or
- 15
- 1
- 100
- their
- —

Solution 12

- from their Venn diagram

Question 25

0580/23 N25 ■ Q25 ■ 4 marks

- 25** Mahir picks one number at random from the numbers 5, 10 and 15. He then picks one number at random from the numbers 4, 5 and 6. He adds the two numbers.

The sample space diagram shows some of the possible outcomes.

		First number			
		+	5	10	15
Second number	4			14	19
	5			15	20
	6			16	21

Question 25

- (a) Complete the sample space diagram. [1]
- (b) Given that the total of the two numbers is odd, find the probability that one of the numbers added is 15.

Question 25

26 Write as a single fraction in its simplest form.

(a) $\frac{mp}{25y} \times \frac{15}{m}$

Question 25

(b) $\frac{3}{2x-5} + \frac{4}{x-3}$

Question 25

Solution 25

(a)

Mark scheme

- 9
- 10
- 11
- 1

Solution 25

(b) Mark scheme

- 2
- 5
- oe
- 2 FT for
- 2
- 5
- their
- their

Solution 25

- B1FT for
- 2
- their
- k
- where their $2 \leq k \leq 9$
- or for
- 5
- c
- their
- where $0 < c \leq 5$

Solution 12

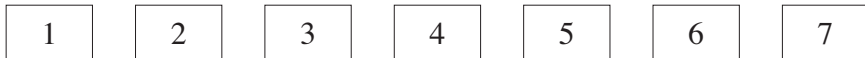
Mark scheme

- 0.55 oe
- 2 B1 for $P(\text{red}) = 0.1$ or $P(\text{pink}) = 0.35$
- or M1 for $0.9 + 0.65 - 1$ or $1 - (0.1 +$
- $0.35)$

Question 4

0580/22 J25 ■ Q4 ■ 2 marks

4



Samira picks one of these cards at random and replaces it.

(a) Find the probability that she picks an odd number.

Question 4

(b) Samira repeats this 35 times.

Calculate the number of times Samira is expected to pick an odd number.

Question 4

Solution 4

(a)

Mark scheme

- 4
- 7 oe
- 1

Solution 4

(b)

Mark scheme

- 20
- 1 FT their (a) $\times 35$ provided $0 < \text{their (a)} < 1$