



F08-test Conditional Probability (Foundation): Test Pack

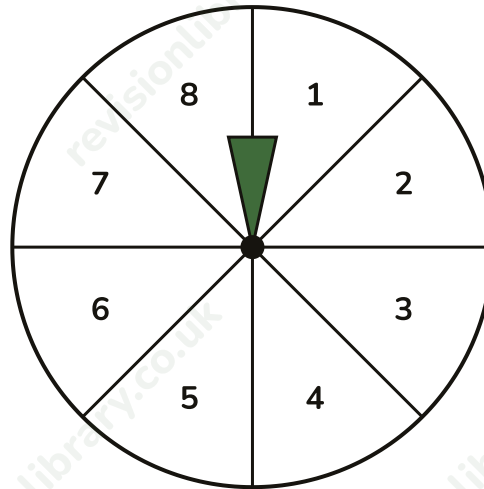
EDEXCEL 1ST0 · Calculator allowed · about 25 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** A fair spinner has 8 equal sections, numbered 1 to 8, as shown. The spinner is spun once.



- (a) List the possible outcomes where the number is greater than 5. (1)
- (b) Given that the number is greater than 5, find the probability that the number is even. (2)

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(Total for Question 1 is 3 marks)

- 2** A survey asked 60 pupils in Year 10 and Year 11 how they travel to school: by bus or on foot (walk). The two-way table shows the results.

	Bus	Walk	Total
Year 10	12	18	30
Year 11	20	10	30
Total	32	28	60

- (a) Write down the number of Year 11 pupils who walk to school. (1)

- (b) One pupil is chosen at random from the Year 10 pupils. Find the probability that this pupil travels by bus. (2)

- (c) One pupil is chosen at random from those who walk to school. Find the probability that this pupil is in Year 10. (2)

(Total for Question 2 is 5 marks)

- 3** A bag contains 6 red and 4 green sweets. A red sweet is removed and eaten. Write down how many red sweets remain in the bag.

(Total for Question 3 is 1 mark)

- 4** State whether the following are independent or dependent events: picking two cards from a deck, one after another, without replacing the first.

(Total for Question 4 is 1 mark)

- 5** 80 pupils were asked whether they have a packed lunch or a school dinner. The two-way table shows some of the results.

	Packed lunch	School dinner	Total
Boys	14		38
Girls		20	42
Total			80

- (a) Complete the two-way table. (2)

- (b) One pupil is chosen at random from the girls. Find the probability that this pupil has a school dinner. (2)

- (c) One pupil is chosen at random from those who have a school dinner. Find the probability that this pupil is a boy. (2)

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(Total for Question 5 is 6 marks)

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- 6** A drawer contains 10 socks: 6 black and 4 white. Tom takes a sock at random and does not replace it. The sock he took was white. Find the probability that the second sock he takes is black.

(Total for Question 6 is 2 marks)

- 7 A sports centre surveyed 120 members on whether they attend gym sessions and whether they attend swimming sessions. The two-way table shows the results.

	Gym	No gym	Total
Swim	27	21	48
No swim	33	39	72
Total	60	60	120

- (a) Find $P(\text{Swim} \mid \text{Gym})$. (2)

- (b) Find $P(\text{Swim})$. (2)

- (c) Using your answers to parts (a) and (b), determine whether attending the gym and attending swimming sessions are independent events. Give a reason. (2)

(Total for Question 7 is 6 marks)

Mark scheme · F08-test Conditional Probability (Foundation): Test Pack

Question 1

- (a) **B1** 6, 7, 8 (all three, any order)
- (a) **Answer: 6, 7, 8**
- (b) **M1** restricts the sample space to {6, 7, 8}, oe
- (b) **A1** $\frac{2}{3}$ oe cao
- (b) **Answer: $\frac{2}{3}$**

Question 2

- (a) **B1** 10 cao
- (a) **Answer: 10**
- (b) **M1** $\frac{12}{30}$ seen, oe
- (b) **A1** $\frac{2}{5}$ oe cao
- (b) **Answer: $\frac{2}{5}$**
- (c) **M1** $\frac{18}{28}$ seen, oe
- (c) **A1** $\frac{9}{14}$ oe cao
- (c) **Answer: $\frac{9}{14}$**

Question 3

- **B1** 5 cao
- **Answer: 5**

Question 4

- **B1** Dependent cao
- **Answer: Dependent**

Question 5

- (a) **B1** Boys school dinner = 24 and Girls packed lunch = 22
- (a) **B1** Total packed lunch = 36 and Total school dinner = 44
- (a) **Answer: Boys school dinner = 24, Girls packed lunch = 22, Total packed lunch = 36, Total school dinner = 44**
- (b) **M1** $\frac{20}{42}$ seen, oe
- (b) **A1** $\frac{10}{21}$ oe cao
- (b) **Answer: $\frac{10}{21}$**
- (c) **M1** $\frac{24}{44}$ seen, using the total school dinner value from part (a)
- (c) **A1** $\frac{6}{11}$ oe cao
- (c) **Answer: $\frac{6}{11}$**

Question 6

- **M1** $\frac{6}{9}$ seen (6 black socks remain out of 9 left)
- **A1** $\frac{2}{3}$ oe cao
- **Answer: $\frac{2}{3}$**

Question 7

- (a) **M1** 27/60 seen, oe
- (a) **A1** 9/20 oe cao
- (a) **Answer: 9/20**
- (b) **M1** 48/120 seen, oe
- (b) **A1** 2/5 oe cao
- (b) **Answer: 2/5**
- (c) **M1** compares 9/20 (= 0.45) with 2/5 (= 0.4)
- (c) **A1** correct conclusion: not independent, since $P(\text{Swim}|\text{Gym})$ does not equal $P(\text{Swim})$
- (c) **Answer: Not independent, since $P(\text{Swim}|\text{Gym}) = 9/20$ does not equal $P(\text{Swim}) = 2/5$.**