COMPREHENSIVE LESSON NOTEBOOK

AQA GCSE Mathematics

FOUNDATION TIER • 8300

UNIT 5 | PROBABILITY

PURPOSE

This unit connects probability language, experimental evidence and theoretical models. Diagrams show how to enumerate outcomes and combine events without missing or double-counting cases.

Specification map and tier boundary

Lesson	AQA	Focus
1	P3	Probability language and the 0-to-1 scale
2	P1	Experiments, frequency tables and frequency trees
3	P2	Randomness, fairness and expected outcomes
4	P4	Exhaustive outcomes, mutual exclusivity and complements
5	P5	Relative frequency and sample size
6	P6	Systematic listing and Venn diagrams
7	P7	Sample spaces and possibility grids
8	P6,P8	Independent events and tree diagrams
9	P8	Dependent events and probability without replacement

TIER BOUNDARY

Covers P1-P8 Foundation-accessible content. P9 formal conditional probability is Higher-only and is excluded.

CHAPTER 01 • P3

Probability language and the 0-to-1 scale

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P3. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.

Understand the idea

Probability measures long-run likelihood from 0 to 1.

Impossible events have probability 0 and certain events 1.

Convert fractions, decimals and percentages consistently.

“Unlikely” does not mean impossible; “even chance” means probability 0.5.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

Place 0.72 on the probability scale.

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain between 0.5 and 1; likely.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

between 0.5 and 1; likely

Second model

QUESTION

Write 35% as probability decimal.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 0.35.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

0.35

Guided practice

GUIDED QUESTION 1

Can probability be 1.2? Explain.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Probability of rain 0.15: describe likelihood.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. Place 0.72 on the probability scale.

2. Write 35% as probability decimal.

3. Can probability be 1.2? Explain.

4. Probability of rain 0.15: describe likelihood.

5. Write 7/20 as decimal and percentage.

6. Give event with probability 1.

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

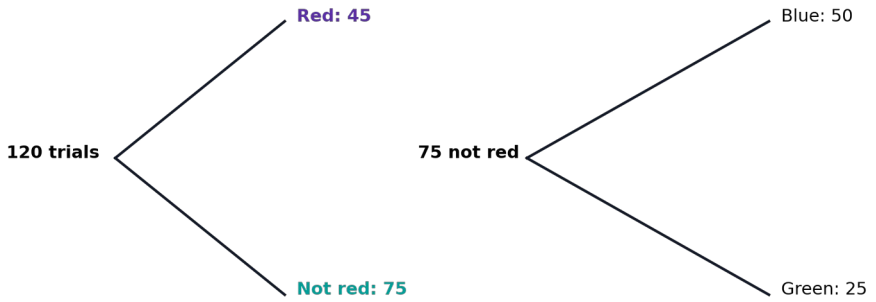
CHAPTER 02 • P1

Experiments, frequency tables and frequency trees

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P1. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Understand the idea

Experimental probability is relative frequency: event frequency divided by total trials.

Tables organise outcomes; frequency trees split a total into exhaustive branches and preserve totals at every junction.

Missing frequencies are found by subtraction before probabilities are calculated.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

45 reds in 120 trials: experimental probability.

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 3/8 or 0.375.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

3/8 or 0.375

Second model

QUESTION

120 trials, 75 not red; 50 blue. Find green.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 25.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

25

Guided practice

GUIDED QUESTION 1

A coin shows heads 84 times in 150. Estimate P(head).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Complete total if outcomes 32,18,25.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. 45 reds in 120 trials: experimental probability.

2. 120 trials, 75 not red; 50 blue. Find green.

3. A coin shows heads 84 times in 150. Estimate P(head).

4. Complete total if outcomes 32,18,25.

5. Why must child branches total parent?

6. Write 0.375 as expected frequency in 800 trials.

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

CHAPTER 03 • P2

Randomness, fairness and expected outcomes

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P2. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.

Understand the idea

Random means individual outcomes cannot be predicted with certainty.

Fair equally likely outcomes have equal probabilities.

Expected frequency=probability×number of trials; it is a model, not a guarantee.

A spinner is fair only when sector sizes are equal or probabilities are otherwise balanced.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

Fair die: P(6).

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 1/6.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

1/6

Second model

QUESTION

Expected sixes in 300 fair rolls.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 50.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

50

Guided practice

GUIDED QUESTION 1

Fair coin: expected heads in 450 tosses.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Spinner probabilities 0.1,0.2,0.3,x. Find x.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. Fair die: P(6).

2. Expected sixes in 300 fair rolls.

3. Fair coin: expected heads in 450 tosses.

4. Spinner probabilities 0.1,0.2,0.3,x. Find x.

5. A game pays £2 with probability 0.4. Expected wins in 80 games?

6. Why might observed count differ from expected?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

CHAPTER 04 • P4

Exhaustive outcomes, mutual exclusivity and complements

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P4. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.

complements fill the whole: 0.6 + 0.4 = 1

Understand the idea

Exhaustive outcomes cover every possibility and sum to 1.

Mutually exclusive events cannot occur together, so their probabilities may be added.

A complement “not A” has probability 1-P(A).

Do not add overlapping events without correcting the overlap.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

P(A)=0.63. Find P(not A).

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 0.37.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

0.37

Second model

QUESTION

P(red)=0.2,P(blue)=0.35, rest green. Find green.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 0.45.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

0.45

Guided practice

GUIDED QUESTION 1

P(even or odd) for integer die.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Can “roll even” and “roll >3” be mutually exclusive?

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. P(A)=0.63. Find P(not A).

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2. P(red)=0.2,P(blue)=0.35, rest green. Find green.

---

3. P(even or odd) for integer die.

4. Can “roll even” and “roll >3” be mutually exclusive?

5. P(A)=0.4,P(B)=0.3 mutually exclusive. Find P(A or B).

6. Why do exhaustive probabilities sum to 1?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

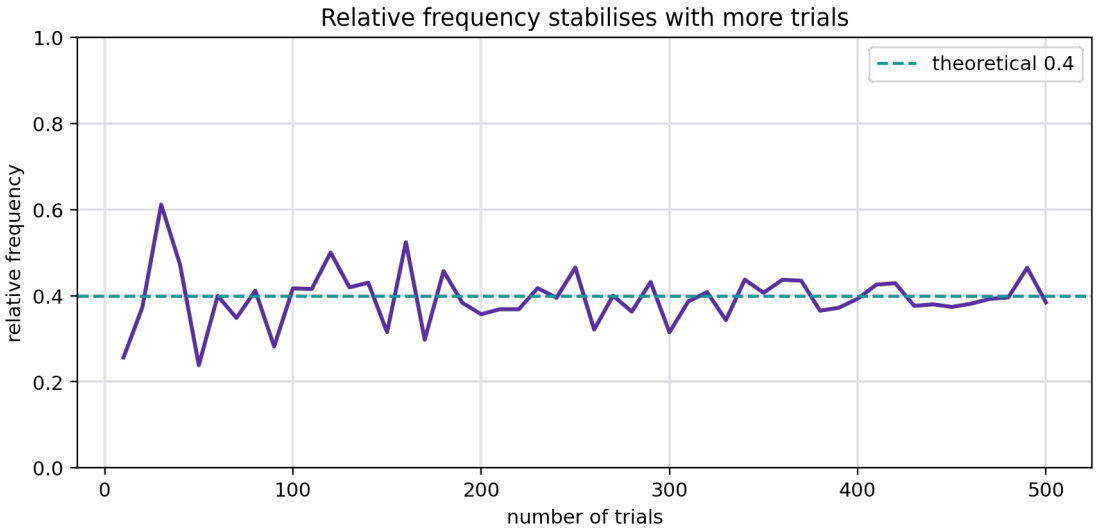
CHAPTER 05 • P5

Relative frequency and sample size

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P5. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Understand the idea

Relative frequency varies from sample to sample.

With a fair unbiased process, increasing sample size usually makes relative frequency settle nearer theoretical probability.

This does not mean it changes smoothly or exactly equals theory.

Bias or changing conditions can prevent convergence.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

18 successes in 50: relative frequency.

1 Represent: Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 0.36.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

0.36

Second model

QUESTION

Estimate successes in next 400 using 0.36.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 144.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

144

Guided practice

GUIDED QUESTION 1

Which is more reliable: 9/20 or 450/1000?

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Theory 0.4; experiment 398/1000. Compare.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. 18 successes in 50: relative frequency.

2. Estimate successes in next 400 using 0.36.

3. Which is more reliable: 9/20 or 450/1000?

4. Theory 0.4; experiment 398/1000. Compare.

5. Why repeat an experiment many times?

6. Does 10 heads in a row prove coin biased?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

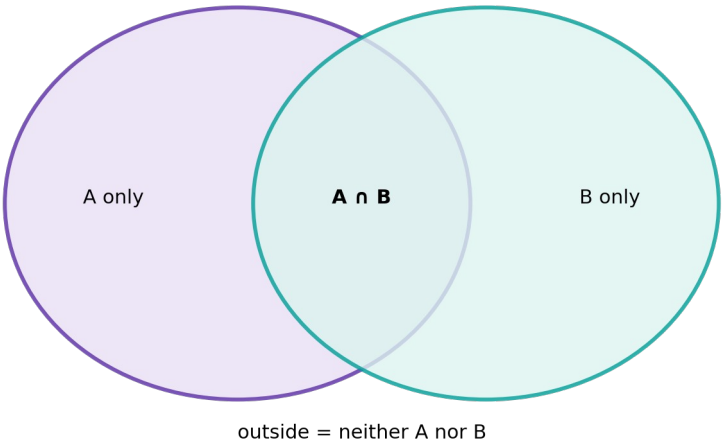
CHAPTER 06 • P6

Systematic listing and Venn diagrams

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P6. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Understand the idea

Systematic methods prove no outcomes are missed or duplicated.

In Venn diagrams, intersections contain members in both sets, union means either set, and outside means neither.

Fill the intersection first, then exclusive regions, then outside.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

List two-digit numbers from 1,2,3 without repetition.

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 12,13,21,23,31,32.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

12,13,21,23,31,32

Second model

QUESTION

In 30 students, 18 study A,12 B,5 both. Find A only.

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 13.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

13

Guided practice

GUIDED QUESTION 1

Find B only.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Find A union B.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. List two-digit numbers from 1,2,3 without repetition.

2. In 30 students, 18 study A,12 B,5 both. Find A only.

3. Find B only.

4. Find A union B.

5. Find neither.

6. Explain why intersection is subtracted in union total.

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

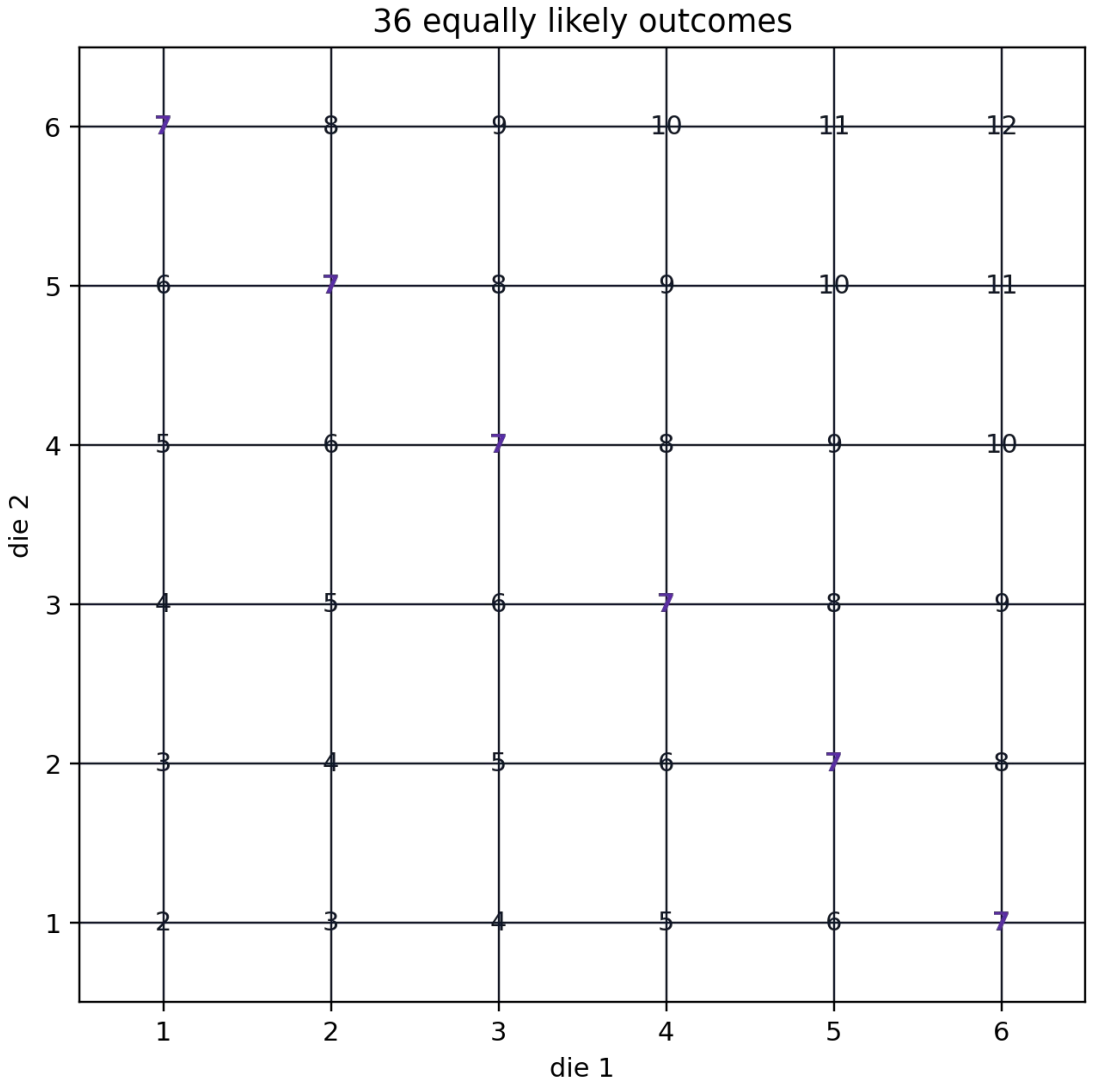
CHAPTER 07 • P7

Sample spaces and possibility grids

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P7. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Understand the idea

A sample space lists every possible outcome.

When outcomes are equally likely, probability=favourable outcomes/total outcomes.

A two-way grid is efficient for combined experiments.

Equal-looking cells must genuinely represent equally likely outcomes before counting.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions

determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

Two coins: list sample space.

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain HH,HT,TH,TT.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

HH,HT,TH,TT

Second model

QUESTION

P(exactly one head).

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 2/4=1/2.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

2/4=1/2

Guided practice

GUIDED QUESTION 1

Two dice: total outcomes.

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

Two dice: P(sum 7).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. Two coins: list sample space.

2. P(exactly one head).

3. Two dice: total outcomes.

4. Two dice: P(sum 7).

5. Spinner 1-4 and coin: outcomes count.

6. Why can’t you simply count colours on unequal spinner?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

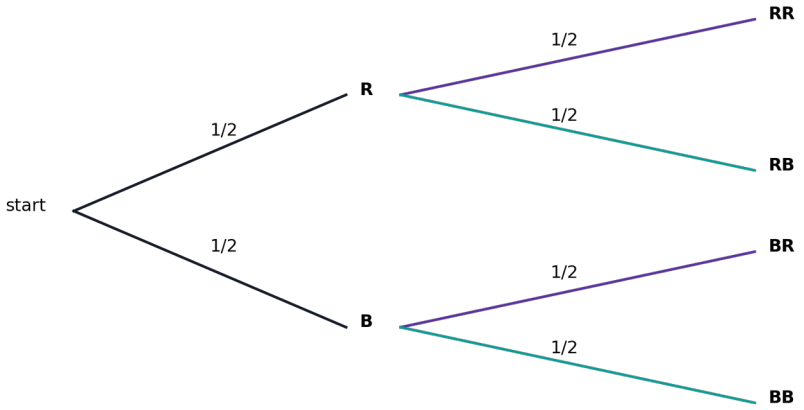
CHAPTER 08 • P6,P8

Independent events and tree diagrams

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P6,P8. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Multiply along branches; add mutually exclusive final routes.

Understand the idea

Independent events do not change each other's probabilities.

Tree branches show successive choices; multiply along a route because both events must occur, then add separate mutually exclusive routes.

Branch probabilities from each node sum to 1.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

Two fair coins: P(HH).

1 **Represent:** Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 1/4.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

1/4

Second model

QUESTION

P(exactly one head).

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 1/2.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

1/2

Guided practice

GUIDED QUESTION 1

Die then coin: P(6 and H).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

P(A)=0.3,P(B)=0.5 independent. P(A and B).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. Two fair coins: P(HH).

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2. P(exactly one head).

3. Die then coin: P(6 and H).

4. P(A)=0.3,P(B)=0.5 independent. P(A and B).

5. P(A or B) when mutually exclusive routes 0.12 and 0.18.

6. What feature shows replacement?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

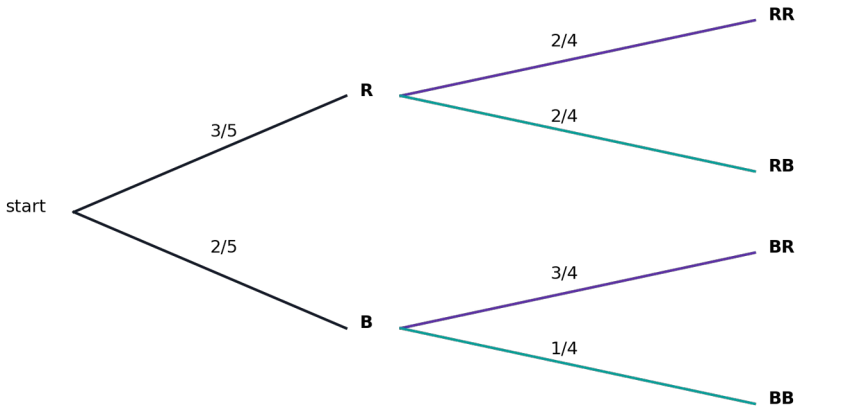
CHAPTER 09 • P8

Dependent events and probability without replacement

What does the method mean, why does it work, and when should it be used?

Specification focus

AQA references P8. This lesson develops representation, calculation, interpretation and critical evaluation of probability models.



Multiply along branches; add mutually exclusive final routes.

Understand the idea

Without replacement, the first outcome changes totals and probabilities on the second stage.

Update both numerator and denominator on every branch.

Multiply along complete routes and add alternative routes.

State assumptions about random selection.

MODEL CHECK

Ask whether outcomes are exhaustive, mutually exclusive and equally likely. These assumptions determine whether counting, adding or multiplying is valid.

Worked examples

Core method

QUESTION

Bag 3 red,2 blue. P(R then R) without replacement.

1 Represent: Write the sample space, frequency table or tree.

2 **Calculate:** Apply the relevant probability rule to obtain 3/5×2/4=3/10.

3 **Interpret:** Check the result lies from 0 to 1 and state its meaning.

ANSWER

3/5×2/4=3/10

Second model

QUESTION

P(R then B).

1 **Organise:** Identify favourable, total and any changing branch totals.

2 **Calculate:** The result is 3/5×2/4=3/10.

3 **Check:** Use complements or exhaustive totals where possible.

ANSWER

3/5×2/4=3/10

Guided practice

GUIDED QUESTION 1

P(one of each colour).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

GUIDED QUESTION 2

P(two blue).

HINT

Draw the representation before calculating. Label every branch, region or grid cell.

Independent practice

1. Bag 3 red,2 blue. P(R then R) without replacement.

2. P(R then B).

3. P(one of each colour).

4. P(two blue).

5. With replacement, P(two red).

6. Why are second branches different without replacement?

AO2-AO3 REASONING

Explain the assumptions behind one answer, describe a likely counting error, and design an experiment that could test the model.

Fully explained answer checks

Lesson 1: Probability language and the 0-to-1 scale

1. between 0.5 and 1; likely

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 0.35

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. No; probabilities lie from 0 to 1.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. unlikely

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 0.35 and 35%

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. Any certain event, e.g. rolling a number 1-6 on a standard die.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 2: Experiments, frequency tables and frequency trees

1. 3/8 or 0.375

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 25

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 0.56

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 75

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. They form an exhaustive split of the parent group.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. 300

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 3: Randomness, fairness and expected outcomes

1. 1/6

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 50

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 225

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 0.4

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 32

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. Random variation, especially in finite samples.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 4: Exhaustive outcomes, mutual exclusivity and complements

1. 0.37

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 0.45

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 1

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. No; 4 and 6 satisfy both.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 0.7

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. They represent the entire sample space.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 5: Relative frequency and sample size

1. 0.36

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 144

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 450/1000 because larger sample

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 0.398 is very close to 0.4

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. To reduce random variation and improve reliability.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. No; unusual sequences can occur randomly.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 6: Systematic listing and Venn diagrams

1. 12,13,21,23,31,32

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 13

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 7

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 25

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 5

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. It was counted in both set totals and would otherwise be double-counted.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 7: Sample spaces and possibility grids

1. HH,HT,TH,TT

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 2/4=1/2

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 36

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 6/36=1/6

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 8

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. Sectors may not be equally likely; areas determine probabilities.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 8: Independent events and tree diagrams

1. 1/4

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 1/2

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 1/12

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 0.15

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 0.30

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. Second-stage probabilities remain unchanged.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Lesson 9: Dependent events and probability without replacement

1. 3/5×2/4=3/10

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

2. 3/5×2/4=3/10

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

3. 3/10+3/10=3/5

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

4. 2/5×1/4=1/10

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

5. 3/5×3/5=9/25

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

6. Composition and total objects change after first selection.

Verify the sample space or branch totals, state whether events are independent or mutually exclusive, and check that all final probabilities remain between 0 and 1.

Unit 5 mastery record

AQA	I can demonstrate…	Secure?
P3	Probability language and the 0-to-1 scale	☐
P1	Experiments, frequency tables and frequency trees	☐
P2	Randomness, fairness and expected outcomes	☐
P4	Exhaustive outcomes, mutual exclusivity and complements	☐
P5	Relative frequency and sample size	☐
P6	Systematic listing and Venn diagrams	☐
P7	Sample spaces and possibility grids	☐
P6,P8	Independent events and tree diagrams	☐
P8	Dependent events and probability without replacement	☐

Official source

AQA GCSE Mathematics (8300), Subject Content 3.5 Probability: https://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300/specification/subject-content/3.5-probability

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