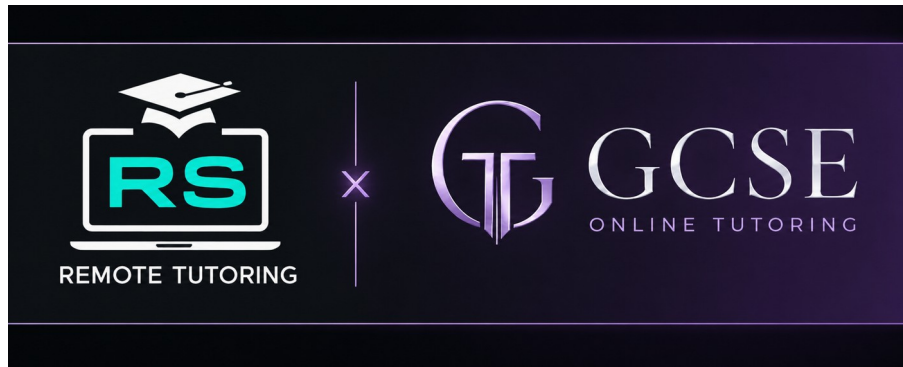




GCSE MATHEMATICS

FOUNDATION TIER

PROBABILITY

PRACTICE BOOK

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Unit 5 Contents and Study Plan

MODULES 28-29 • FREE WEBSITE EDITION

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Complete Core Skills, Exam Practice, Grade 4-5 Challenge and same-topic retrieval. Draw tables, grids, Venn diagrams and trees where helpful. Formula guides and answers are at the end.

Module	Topic	Specification	Score
28	Probability Foundations	P1, P2, P3, P4, P5	____ / ____
29	Combined Probability and Possibility Spaces	P5, P6, P7, P8	____ / ____

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Unit 5 Specification Coverage Map

INDEPENDENTLY AUTHORED PRACTICE MAP

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

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Probability Foundations

CORE SKILLS • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

1. 3 of 10 equally likely outcomes are favourable. Find the probability. [1 mark]

2. 7 of 20 equally likely outcomes are favourable. Find the probability. [1 mark]

3. 5 of 8 equally likely outcomes are favourable. Find the probability. [1 mark]

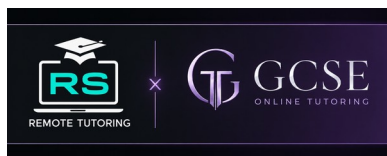
4. 9 of 25 equally likely outcomes are favourable. Find the probability. [1 mark]

5. 11 of 50 equally likely outcomes are favourable. Find the probability. [1 mark]

6. An event has probability 0.2. Find probability it does not happen. [1 mark]

7. An event has probability 0.35. Find probability it does not happen. [1 mark]

8. An event has probability 0.6. Find probability it does not happen. [1 mark]



Probability Foundations

CORE SKILLS • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

9. An event has probability 0.72. Find probability it does not happen. [1 mark]

10. An event has probability 0.95. Find probability it does not happen. [1 mark]

11. Place impossible on probability scale. [1 mark]

12. Place certain on probability scale. [1 mark]

13. Which is more likely: probability 0.63 or $\frac{5}{8}$? [2 marks]

14. Probabilities red 0.3, blue 0.45, green x. Find x. [2 marks]

15. A fair six-sided die: probability of an even number. [1 mark]



MODULE 28 / P1, P2, P3, P4, P5

Probability Foundations

EXAM PRACTICE • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

*Same-module practice. Show probability setup and simplify exact fractions.***1. Probability of success is 0.2. Find expected successes in 80 trials. [2 marks]**

2. Probability of success is 0.35. Find expected successes in 200 trials. [2 marks]

3. Probability of success is 0.6. Find expected successes in 150 trials. [2 marks]

4. Probability of success is 0.08. Find expected successes in 500 trials. [2 marks]

5. Probability of success is 0.75. Find expected successes in 240 trials. [2 marks]



Probability Foundations

EXAM PRACTICE • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

6. An event occurs 18 times in 30 trials. Use relative frequency to estimate occurrences in 100 future trials. [3 marks]

7. An event occurs 42 times in 60 trials. Use relative frequency to estimate occurrences in 150 future trials. [3 marks]

8. An event occurs 35 times in 50 trials. Use relative frequency to estimate occurrences in 200 future trials. [3 marks]

9. An event occurs 12 times in 80 trials. Use relative frequency to estimate occurrences in 400 future trials. [3 marks]

10. An event occurs 63 times in 90 trials. Use relative frequency to estimate occurrences in 300 future trials. [3 marks]



Probability Foundations

EXAM PRACTICE • PART C

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

11. A spinner has four equal sectors labelled A,A,B,C. Is it fair for letters? [2 marks]

12. A coin gives 68 heads in 100 tosses. Give evidence it may be biased. [2 marks]

13. Why may 10 tosses differ from theoretical probability? [2 marks]

14. What happens to empirical probability as sample size increases? [2 marks]

15. A bag outcome probabilities are 0.1,0.2,0.25 and x. Find x. [2 marks]



Probability Foundations

GRADE 4-5 CHALLENGE • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

1. A game pays out on probability 0.4. In 250 games estimate no payout. [3 marks]

2. A spinner frequencies red48 blue32 green20. Estimate $P(\text{blue})$. [2 marks]

3. Two players claim a die is biased after 12 rolls. Explain limitation. [2 marks]

4. A and B are mutually exclusive. $P(A)=0.70$ and $P(B)=0.18$. Find the probability of neither A nor B. [3 marks]

5. A weather forecast says 30% rain. Interpret. [2 marks]



Probability Foundations

GRADE 4-5 CHALLENGE • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

6. A fair spinner numbers 1-8. Expected number of 7s in 320 spins. [2 marks]

7. Experimental probability 0.46 from 200 trials. Find event frequency. [2 marks]

8. Probability scale: describe 0.01. [1 mark]

9. Give two mutually exclusive die events. [2 marks]

10. Why do exhaustive probabilities sum to 1? [2 marks]



Probability Foundations

MIXED RETRIEVAL

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Same-module practice. Show probability setup and simplify exact fractions.

1. Complement of 0.27. [1 mark]

2. Expected successes $p=0.4, n=50$. [1 mark]

3. Relative frequency $24/60$. [1 mark]

4. Fair die $P(\text{number} > 4)$. [1 mark]

5. Complete probabilities 0.2, 0.5, x. [1 mark]



Combined Probability and Possibility Spaces

CORE SKILLS • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

1. A fair 4-sided spinner and a fair coin are used. How many equally likely combined outcomes? [1 mark]

2. A fair 6-sided spinner and a fair coin are used. How many equally likely combined outcomes? [1 mark]

3. A fair 8-sided spinner and a fair coin are used. How many equally likely combined outcomes? [1 mark]

4. A fair 10-sided spinner and a fair coin are used. How many equally likely combined outcomes? [1 mark]

5. A fair 12-sided spinner and a fair coin are used. How many equally likely combined outcomes? [1 mark]

6. Two fair spinners have 3 and 4 sectors. How many cells in a possibility-space grid? [1 mark]

7. Two fair spinners have 4 and 5 sectors. How many cells in a possibility-space grid? [1 mark]

8. Two fair spinners have 2 and 6 sectors. How many cells in a possibility-space grid? [1 mark]



Combined Probability and Possibility Spaces

CORE SKILLS • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

9. Two fair spinners have 5 and 6 sectors. How many cells in a possibility-space grid? [1 mark]

10. Two fair spinners have 4 and 8 sectors. How many cells in a possibility-space grid? [1 mark]

11. List outcomes for two coin tosses. [2 marks]

12. Two fair coins: probability exactly one head. [2 marks]

13. Two fair dice: probability total 7. [2 marks]

14. A die and coin: probability even and head. [2 marks]

15. Explain AND versus OR. [2 marks]



Combined Probability and Possibility Spaces

EXAM PRACTICE • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

- 1. Independent events A and B have probabilities 0.3 and 0.4. Find $P(A \text{ and } B)$. [2 marks]**

- 2. Independent events A and B have probabilities 0.5 and 0.2. Find $P(A \text{ and } B)$. [2 marks]**

- 3. Independent events A and B have probabilities 0.7 and 0.6. Find $P(A \text{ and } B)$. [2 marks]**

- 4. Independent events A and B have probabilities 0.25 and 0.8. Find $P(A \text{ and } B)$. [2 marks]**

- 5. Independent events A and B have probabilities 0.9 and 0.3. Find $P(A \text{ and } B)$. [2 marks]**



Combined Probability and Possibility Spaces

EXAM PRACTICE • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

6. Mutually exclusive A and B have probabilities 0.3 and 0.4. Find $P(A \text{ or } B)$. [2 marks]

7. Mutually exclusive A and B have probabilities 0.5 and 0.2. Find $P(A \text{ or } B)$. [2 marks]

8. Mutually exclusive A and B have probabilities 0.1 and 0.6. Find $P(A \text{ or } B)$. [2 marks]

9. Mutually exclusive A and B have probabilities 0.25 and 0.5. Find $P(A \text{ or } B)$. [2 marks]

10. Mutually exclusive A and B have probabilities 0.4 and 0.3. Find $P(A \text{ or } B)$. [2 marks]



Combined Probability and Possibility Spaces

EXAM PRACTICE • PART C

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

11. Bag has 3 red, 2 blue. Two drawn without replacement. P(two red). [3 marks]

12. Bag has 4 green, 6 yellow. Two without replacement. P(green then yellow). [3 marks]

13. Bag has 5 black, 3 white. Two with replacement. P(two white). [3 marks]

14. Tree first branch probabilities 0.65 and x. Find x. [1 mark]

15. Why branch probabilities from a node sum to 1? [2 marks]



Combined Probability and Possibility Spaces

GRADE 4-5 CHALLENGE • PART A

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

1. Two dice: probability total greater than 10. [3 marks]

2. Two dice: probability doubles. [2 marks]

3. Cards 1-5 twice with replacement: P(product even). [4 marks]

4. Bag 2R,3B,1G. Two without replacement: P(same colour). [4 marks]

5. A coin has $P(H)=0.6$. Two tosses: P(exactly one H). [4 marks]



Combined Probability and Possibility Spaces

GRADE 4-5 CHALLENGE • PART B

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

6. Class: 18 study French, 12 Spanish, 5 both, 30 total. Find neither. [3 marks]

7. Venn sets $A=14, B=11, \text{both}=4, \text{total}=25$. Find $P(A \text{ or } B)$. [3 marks]

8. Three coin tosses: $P(\text{all same})$. [3 marks]

9. A biased coin $P(H)=0.7$ tossed 3 times. $P(\text{no heads})$. [3 marks]

10. Without replacement, explain dependence. [2 marks]



Combined Probability and Possibility Spaces

MIXED RETRIEVAL

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Same-module practice. Show probability setup and simplify exact fractions.

1. Two coins P(two heads). [1 mark]

2. Independent $p=.2, q=.5$: both. [1 mark]

3. Mutually exclusive .3,.4: either. [1 mark]

4. 3R,2B: P(red then blue without replacement). [2 marks]

5. Two dice sample-space size. [1 mark]



Probability Foundations

FORMULAS AND METHOD BANK

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use these methods before checking the answer tables. Write the setup first, substitute values, calculate, then give a final answer with units.

When to use it	Formula / method
Basic probability	favourable equally likely outcomes $\div$ total outcomes.
Complement	$P(\text{not } A) = 1 - P(A)$.
Exhaustive outcomes	Probabilities sum to 1.
Relative frequency	number of observed successes $\div$ number of trials.
Expected frequency	probability $\times$ number of trials.
Fairness	Equally likely outcomes have equal probabilities.
Sample size	Larger unbiased samples usually give more stable estimates.

Marking reminder: a correct setup can earn method marks even when a later arithmetic error occurs.



Combined Probability and Possibility Spaces

FORMULAS AND METHOD BANK

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Use these methods before checking the answer tables. Write the setup first, substitute values, calculate, then give a final answer with units.

When to use it	Formula / method
Possibility space	List all ordered outcomes systematically in a table/grid.
Independent AND	Multiply probabilities.
Mutually exclusive OR	Add probabilities.
Tree branches	Branches from each node sum to 1; multiply along a route; add required routes.
Without replacement	Denominator and relevant numerator change after first selection.
Venn union	$n(A \cup B) = n(A) + n(B) - n(A \cap B)$.
At least one	Often use $1 - P(\text{none})$.

Marking reminder: a correct setup can earn method marks even when a later arithmetic error occurs.



Probability Foundations

CORE SKILLS • PART A - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	$3/10=3/10.$	1	B1: correct result or statement.
2	$7/20=7/20.$	1	B1: correct result or statement.
3	$5/8=5/8.$	1	B1: correct result or statement.
4	$9/25=9/25.$	1	B1: correct result or statement.
5	$11/50=11/50.$	1	B1: correct result or statement.
6	$1-0.2=0.8.$	1	B1: correct result or statement.
7	$1-0.35=0.65.$	1	B1: correct result or statement.
8	$1-0.6=0.4.$	1	B1: correct result or statement.



Probability Foundations

CORE SKILLS • PART B - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
9	$1 - 0.72 = 0.28$.	1	B1: correct result or statement.
10	$1 - 0.95 = 0.05$.	1	B1: correct result or statement.
11	0.	1	B1: correct result or statement.
12	1.	1	B1: correct result or statement.
13	$5/8 = 0.625$, so 0.63 is slightly more likely.	2	M1 method; A1 answer.
14	$x = 1 - 0.75 = 0.25$.	2	M1 method; A1 answer.
15	$3/6 = 1/2$.	1	B1: correct result or statement.



Probability Foundations

EXAM PRACTICE • PART A - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	$0.2 \times 80 = 16.$	2	M1 method; A1 answer.
2	$0.35 \times 200 = 70.$	2	M1 method; A1 answer.
3	$0.6 \times 150 = 90.$	2	M1 method; A1 answer.
4	$0.08 \times 500 = 40.$	2	M1 method; A1 answer.
5	$0.75 \times 240 = 180.$	2	M1 method; A1 answer.
6	Relative frequency = $18/30 = 0.6$; estimate = 60.	3	M1 setup; M1 process; A1 conclusion.
7	Relative frequency = $42/60 = 0.7$; estimate = 105.	3	M1 setup; M1 process; A1 conclusion.
8	Relative frequency = $35/50 = 0.7$; estimate = 140.	3	M1 setup; M1 process; A1 conclusion.



Probability Foundations

EXAM PRACTICE • PART B - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
9	Relative frequency = $12/80 = 0.15$; estimate = 60.	3	M1 setup; M1 process; A1 conclusion.
10	Relative frequency = $63/90 = 0.7$; estimate = 210.	3	M1 setup; M1 process; A1 conclusion.
11	No: $P(A) = 1/2$ while $P(B) = P(C) = 1/4$.	2	M1 method; A1 answer.
12	Relative frequency 0.68 is noticeably different from theoretical 0.5.	2	M1 method; A1 answer.
13	Random variation; small samples can fluctuate.	2	M1 method; A1 answer.
14	For an unbiased process it tends to get closer to theoretical probability.	2	M1 method; A1 answer.
15	$x = 1 - 0.55 = 0.45$.	2	M1 method; A1 answer.



Probability Foundations

GRADE 4-5 CHALLENGE - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	$P(\text{no})=0.6$; $0.6 \times 250=150$.	3	M1 setup; M1 process; A1 conclusion.
2	$32/100=0.32$.	2	M1 method; A1 answer.
3	12 is a small sample; more rolls are needed.	2	M1 method; A1 answer.
4	$P(\text{neither})=1-P(A)-P(B)=1-0.70-0.18=0.12$.	3	M1 setup; M1 process; A1 conclusion.
5	Across many similar days, about 30 in 100 would have rain; not "30% of the day".	2	M1 method; A1 answer.
6	$P=1/8$; expected=40.	2	M1 method; A1 answer.
7	$0.46 \times 200=92$.	2	M1 method; A1 answer.
8	Very unlikely but possible.	1	B1: correct result or statement.
9	Example: roll an odd number and roll an even number.	2	M1 method; A1 answer.
10	Exactly one of all possible outcomes must occur.	2	M1 method; A1 answer.



MODULE 28 / P1, P2, P3, P4, P5

Probability Foundations

MIXED RETRIEVAL - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	0.73.	1	B1: correct result or statement.
2	20.	1	B1: correct result or statement.
3	0.4.	1	B1: correct result or statement.
4	$2/6=1/3$.	1	B1: correct result or statement.
5	$x=0.3$.	1	B1: correct result or statement.



Combined Probability and Possibility Spaces

CORE SKILLS • PART A - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	$4 \times 2 = 8.$	1	B1: correct result or statement.
2	$6 \times 2 = 12.$	1	B1: correct result or statement.
3	$8 \times 2 = 16.$	1	B1: correct result or statement.
4	$10 \times 2 = 20.$	1	B1: correct result or statement.
5	$12 \times 2 = 24.$	1	B1: correct result or statement.
6	$3 \times 4 = 12.$	1	B1: correct result or statement.
7	$4 \times 5 = 20.$	1	B1: correct result or statement.
8	$2 \times 6 = 12.$	1	B1: correct result or statement.



Combined Probability and Possibility Spaces

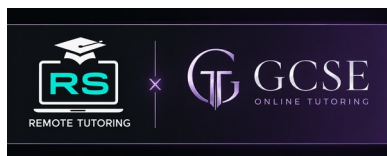
CORE SKILLS • PART B - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
9	$5 \times 6 = 30$.	1	B1: correct result or statement.
10	$4 \times 8 = 32$.	1	B1: correct result or statement.
11	HH, HT, TH, TT.	2	M1 method; A1 answer.
12	$2/4 = 1/2$.	2	M1 method; A1 answer.
13	$6/36 = 1/6$.	2	M1 method; A1 answer.
14	$3/6 \times 1/2 = 1/4$.	2	M1 method; A1 answer.
15	For independent branches multiply for AND; add mutually exclusive routes for OR.	2	M1 method; A1 answer.



Combined Probability and Possibility Spaces

EXAM PRACTICE • PART A - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	$0.3 \times 0.4 = 0.12.$	2	M1 method; A1 answer.
2	$0.5 \times 0.2 = 0.1.$	2	M1 method; A1 answer.
3	$0.7 \times 0.6 = 0.42.$	2	M1 method; A1 answer.
4	$0.25 \times 0.8 = 0.2.$	2	M1 method; A1 answer.
5	$0.9 \times 0.3 = 0.27.$	2	M1 method; A1 answer.
6	$0.3 + 0.4 = 0.7.$	2	M1 method; A1 answer.
7	$0.5 + 0.2 = 0.7.$	2	M1 method; A1 answer.
8	$0.1 + 0.6 = 0.7.$	2	M1 method; A1 answer.



Combined Probability and Possibility Spaces

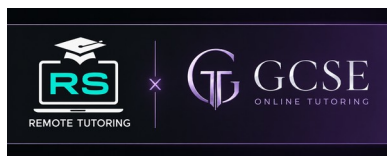
EXAM PRACTICE • PART B - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
9	$0.25 + 0.5 = 0.75$.	2	M1 method; A1 answer.
10	$0.4 + 0.3 = 0.7$.	2	M1 method; A1 answer.
11	$3/5 \times 2/4 = 3/10$.	3	M1 setup; M1 process; A1 conclusion.
12	$4/10 \times 6/9 = 4/15$.	3	M1 setup; M1 process; A1 conclusion.
13	$3/8 \times 3/8 = 9/64$.	3	M1 setup; M1 process; A1 conclusion.
14	0.35.	1	B1: correct result or statement.
15	They form an exhaustive set of next outcomes.	2	M1 method; A1 answer.



Combined Probability and Possibility Spaces

GRADE 4-5 CHALLENGE - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: ____ / ____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Mark s	Check
1	Outcomes (5,6),(6,5),(6,6): $3/36=1/12$.	3	M1 setup; M1 process; A1 conclusion.
2	$6/36=1/6$.	2	M1 method; A1 answer.
3	$P(\text{both odd})=3/5 \times 3/5=9/25$; required= $16/25$.	4	M1 setup; M1 development; A1 accuracy; A1 conclusion.
4	$RR=2/6 \times 1/5=1/15$; $BB=3/6 \times 2/5=1/5$; total= $4/15$.	4	M1 setup; M1 development; A1 accuracy; A1 conclusion.
5	$HT+TH=0.6 \times 0.4+0.4 \times 0.6=0.48$.	4	M1 setup; M1 development; A1 accuracy; A1 conclusion.
6	Union= $18+12-5=25$; neither=5.	3	M1 setup; M1 process; A1 conclusion.
7	Union= $14+11-4=21$; probability $21/25$.	3	M1 setup; M1 process; A1 conclusion.
8	HHH or TTT: $2/8=1/4$.	3	M1 setup; M1 process; A1 conclusion.
9	$0.3^3=0.027$.	3	M1 setup; M1 process; A1 conclusion.
10	First outcome changes the contents and therefore second probabilities.	2	M1 method; A1 answer.



Combined Probability and Possibility Spaces

MIXED RETRIEVAL - ANSWERS

FOUNDATION TIER • SHOW CLEAR WORKING • WRITE UNITS WHERE REQUIRED

Name: _____ Date: _____ Score: _____ / _____

Use the formula/method guides in the consolidated solutions section. Award method marks where the setup is correct.

Q	Answer / concise method	Marks	Check
1	1/4.	1	B1: correct result or statement.
2	0.1.	1	B1: correct result or statement.
3	0.7.	1	B1: correct result or statement.
4	$3/5 \times 2/4 = 3/10$.	2	M1 method; A1 answer.
5	36.	1	B1: correct result or statement.