

Probability – Checkpoint Sec 1 Math**1. No.14**

Mike throws an ordinary 6-sided dice and spins a coin at the same time.
One possible outcome is a 4 and a tail.

Work out the total number of possible outcomes.

..... [1]

2. No.18

A bag contains some counters.
Each counter is either red or green or yellow or blue.

A counter is taken from the bag at random.
The table shows the probabilities of taking a red counter, a green counter and a yellow counter.

Colour	Red	Green	Yellow	Blue
Probability	0.25	0.5	0.15	

Tick (✓) to show if each of these statements is true, false or whether you cannot tell.

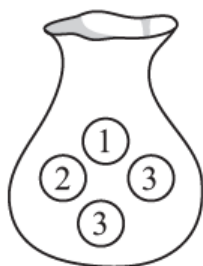
	True	False	Cannot tell
One quarter of the counters in the bag are red.	☐	☐	☐
The bag contains 100 counters altogether.	☐	☐	☐
The bag contains more blue counters than yellow.	☐	☐	☐

[2]

3. No.23

Lily has two bags.

Each bag contains four counters, as shown in the diagram.



She picks **one** counter from each bag and adds together the numbers on the counters.

Work out the probability that the total of her numbers is **more** than 3

You may find the table useful.

..... [2]

4. No.9

Pierre rolls a dice with four sides, numbered 1 to 4
He also throws a coin with two outcomes, H or T.

List all the possible outcomes.

One has been done for you.

You may not need to use all the rows.

Dice	Coin
1	H

[1]

5. No.21

Hassan plays cricket.

The table shows the number of catches he makes in 50 games.

Number of catches	0	1	2	3	4	5
Frequency	8	11	12	13	4	2

- (a) Use the table to estimate the probability that he makes exactly **one** catch in the next game he plays.

..... [1]

- (b) Write down the modal number of catches.

..... [1]

- (c) Find the median number of catches.

..... [1]

6. No.24

A box contains pens of different colours.

Yuri takes a pen from the box at random.

The probabilities of him taking a pen coloured red or blue or green are shown in the table.

Colour of pen	Red	Blue	Green
Probability	0.4	0.15	0.25

Yuri says,

‘There must be more than three different colours of pen in the box.’

Explain how the probabilities show Yuri is correct.

.....
 [1]

7. No.25

William plays a game.

He throws two fair dice.

His score is the **higher** of the two numbers shown on the dice.

The sample space diagram shows some of his possible scores.

		First dice					
		1	2	3	4	5	6
Second dice	1	1	2	3	4	5	6
	2	2	2	3	4		
	3	3	3	3	4		
	4				4		
	5					5	
	6						6

(a) Complete the sample space diagram.

[2]

(b) Work out the probability that his score is greater than 4

[1]

8. No.18

Some students choose their favourite drink from the six drinks shown in the table. Some of the probabilities of the students choosing each drink are shown.

Drink	Tea	Coffee	Milk	Water	Cola	Orange
Probability	0.15	0.32		0.08		0.29

Three times as many students choose milk as choose cola.

Complete the table.

[2]

9. No.15

Mike throws a fair six-sided dice.



(a) The scale shows the probability of an event.

Tick (✓) **all** the events that could be represented by the arrow.

Getting an odd number on the dice.

☐

Getting the number 3 on the dice.

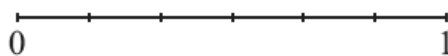
☐

Getting a number less than 4 on the dice.

☐

[1]

(b) Draw an arrow (↑) on the scale to show the probability of getting a 4 or a 5 on the dice.



[1]

10. No.16

- (a) Chen throws a coin 120 times.
He gets 54 heads.

Write down the relative frequency that Chen gets a head.

..... [1]

- (b) Jamila also throws a coin 120 times.
The relative frequency that she gets a head is 0.575

Work out how many **more** heads Jamila gets than Chen gets.

..... [2]

11. No.18

A supermarket puts coloured labels on bottles of drinks to show how much sugar each contains per 100ml.

Each label is either green or yellow or red.

Colour of label	Amount of sugar per 100ml of drink
Green	Less than 2.4 g
Yellow	Between 2.4 g and 6.2 g
Red	More than 6.2 g

The supermarket sells lemonade in bottles containing 250ml.

Each bottle contains 14.5 g of sugar.

Work out which colour label should be put on these bottles of lemonade.

Draw a ring around your answer.

Green

Yellow

Red

Show how you worked out your answer.

[2]

12. No.10

Mike has six cards each labelled with a letter.



He selects a card at random and records the letter on it.

(a) Write down a list of all the possible outcomes.

..... [1]

(b) Write down the probability that Mike selects a card that is labelled with the letter C.

..... [1]

13. No.29

Hassan travels by bus to work every morning.

The bus is either green or blue or yellow.

The table shows information about the probabilities of each colour.

Colour of bus	Green	Blue	Yellow
Probability	$2x$	$2x$	x

(a) Calculate the value of x .

$x =$ [2]

(b) Work out the probability that Hassan's bus is either blue or yellow.

..... [1]

14. No.6

Lily has seven cards.



(a) She picks a card at random.

Write down the probability that she picks a card that has a circle on it.

..... [1]

(b) Lily is given one more card.

The probability of picking at random a card with a square on it is now $\frac{1}{2}$

Draw a ring around the shape that must be on the new card.

square

circle

triangle

cannot tell

[1]

15. No.12

Angelique has some building blocks.

The blocks are red or green or yellow or blue.

- (a) There are 4 times as many blue blocks as there are green blocks.

Angelique picks a block at random.

Complete the table to show the probability of picking each colour.

Colour	Red	Green	Yellow	Blue
Probability	0.2		0.05	

[2]

- (b) Angelique picks two blocks at random.

Complete the sample space diagram showing all the possible outcomes for the colours of her two blocks.

		Block 2			
		Red (R)	Green (G)	Yellow (Y)	Blue (B)
Block 1	Red (R)	RR	RG	RY	RB
	Green (G)				
	Yellow (Y)			YY	
	Blue (B)	BR			

[1]

16. No.14

Anastasia has four coins A , B , C and D .

One of these coins is a fair coin and the other three are biased coins.

She throws each coin 200 times and records the number of times she gets a head.

Tick (✓) the coin that is most likely to be the fair coin.

Coin A
49 heads

☐

Coin B
142 heads

☐

Coin C
110 heads

☐

Coin D
68 heads

☐

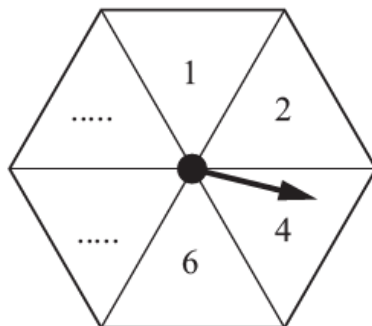
[1]

17. No.26

The diagram shows a fair six-sided spinner.

Each section is numbered.

The numbers on four of the sections are shown.



Ahmed spins the spinner twice and the scores are added.

The sample space diagram shows some of the total scores.

+	1	2	4	6	.....	.....
1	2	3	5	7	.....	.....
2	3	4	6	8	.....	.....
4	5	6	8	10	.....	.....
6	7	8	10	12	12	.....
.....	.....	.....	10	.....	.....	14
.....						

Calculate the probability that the total score is 10 or more.

..... [3]

18. No.3

A teacher keeps a record of how many times Mike arrives late to school.
The results are shown in the tally chart.

	Tally
Late	|||| |||| |||
On time	||||

Use the results to estimate the probability that Mike arrives late to school.
Draw a ring around your answer.

$$\frac{1}{15}$$

$$\frac{5}{15}$$

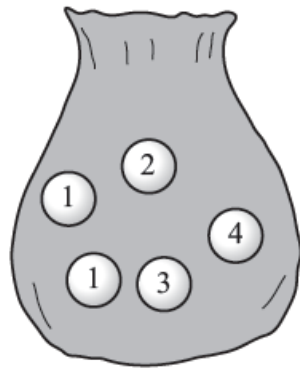
$$\frac{1}{2}$$

$$\frac{3}{4}$$

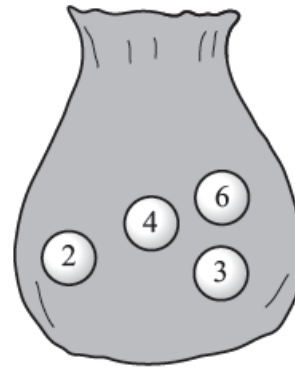
[1]

19. No.14

Blessy has two bags containing numbered counters.



Bag A



Bag B

She takes one counter at random from Bag A and another counter at random from Bag B. She **adds** the numbers on her two counters.

Find the probability that Blessy's answer is more than 6

..... [3]

20. No.8

Angelique has a fair six-sided dice.



(a) Find the probability of throwing a multiple of 3

..... [1]

(b) Angelique throws a different six-sided dice 120 times.
The table shows her results.

Score	1	2	3	4	5	6
Frequency	15	26	21	14	20	24

Work out the experimental probability of throwing a multiple of 3

..... [1]

21. No.7

There are 280 students in Year 10

Half of the students are boys.

155 of the students get a grade of A, B or C in their mathematics test.

61 girls get a grade of D, E or F.

(a) Complete the table.

Grade in mathematics test for Year 10 students

	Grade A, B or C	Grade D, E or F	Total
Boys			
Girls			
Total			280

[2]

(b) A student is chosen at random from Year 10

Write down the probability that the student is a girl with a grade D, E or F.

..... [1]

22. No.2

Complete these sentences.

The probability that a football team wins a match is 0.6 and the probability it does not win is

.....

The probability that a player scores a goal is and the probability that the player does not score a goal is $\frac{3}{8}$

The probability that a fan supports a team is 72% and the probability that the fan does not support the team is %.

[2]

23. No.28

Yuri rolls a six-sided dice 200 times.

Lily rolls the same dice 250 times.

The table shows their relative frequencies for a score of six.

	Number of throws	Relative frequency for a six
Yuri	200	0.18
Lily	250	0.22

Work out how many sixes they rolled altogether.

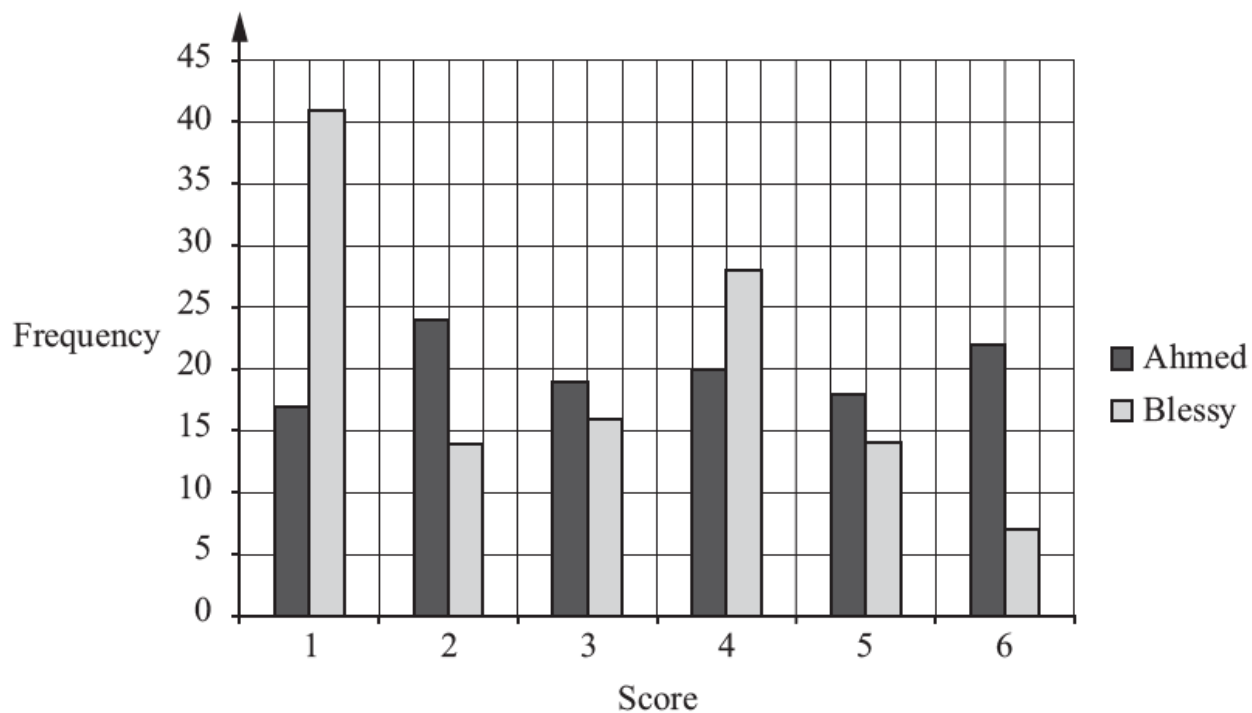
..... [2]

24. No.6

Ahmed and Blessy each have a six-sided dice.

They each throw their dice 120 times.

The results of their throws are shown in the bar chart.



One of the dice is biased.

Tick (✓) the name of the person that you think has the biased dice.

☐

Ahmed

☐

Blessy

Give a reason for your answer.

[1]

25. No.10

Bag A and Bag B each contain **three** coloured cubes.

Oliver takes a cube from Bag A and a cube from Bag B.

Complete the table to show the **nine** possible outcomes for the colours of Oliver's two cubes.

Bag A	Bag B
Blue	Green
Yellow	Green
Red	Green
Blue	White
Yellow	
Red	White
Blue	
Yellow	Red

[1]

26. No.3

Ahmed has 10 tins in his cupboard.

Five contain soup, three contain peas and two contain beans.

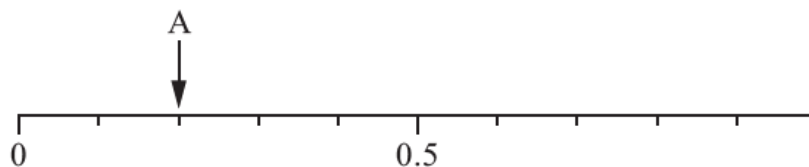


Ahmed takes a tin from his cupboard without looking.

Four events are:

- A Ahmed picks a tin containing beans.
- B Ahmed picks a tin containing soup.
- C Ahmed picks a tin containing oranges.
- D Ahmed picks a tin containing peas.

Place arrows on the probability scale to show how likely each of the events is.
The first one has been done for you.



[2]

27. No.14

Chen throws two six-sided dice.

He records the **difference** between the two scores.

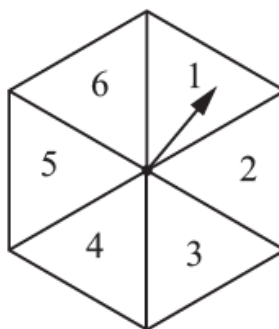
Complete this table showing the possible outcomes.

Second dice	6	5	4	3	2	1	0
	5	4	3	2	1	0	1
	4	3	2	1	0	1	
	3	2	1	0	1		
	2	1	0	1			
	1	0	1				5
		1	2	3	4	5	6
First dice							

[1]

28. No.11

A biased spinner has 6 sides.



The table shows the probabilities for some of the outcomes.

Outcome	1	2	3	4	5	6
Probability	0.3	0.15		0.28		

The remaining three outcomes are equally likely.

Work out the probability that the spinner lands on 5

..... [2]