

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Probability

One markers

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

For questions 1 to 3 you must **NOT** use a calculator.



Q1.

An ordinary fair dice is rolled.

$$P(A) = \frac{5}{6}$$

Which could be a correct statement about event A?

Tick **one** box.

☐

The number rolled is even

☐

The number rolled is greater than 1

☐

The number rolled is less than 5

☐

The number rolled is prime

(Total 1 mark)

Q2.

What does $(A \cup B)$ represent in $P(A \cup B)$?

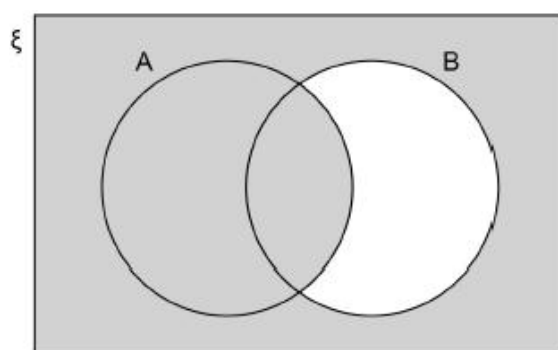
Circle your answer.

A or B or both
not A and not B

A and B
A but not B

(Total 1 mark)

Q3.



Which of these represents the shaded region?

Circle your answer.

$A \cap B'$

B'

$A \cup B'$

$A' \cup B'$

(Total 1 mark)

For the rest of the questions, you may use a calculator.



Q4.

An ordinary fair dice is rolled ten times.
Here are the first nine results.

6 1 3 2 1 5 5 5 5

Write down the probability of getting a 5 on the tenth roll.

Answer _____

(Total 1 mark)

Q5.

The probability that A is the outcome of an experiment is 0.2
Circle the probability that A is **not** the outcome.

0 0.2 0.5 0.8

(Total 1 mark)

Q6.

An experiment has four outcomes.

Outcome	A	B	C	D
Probability	0.1		0.2	0.3

Circle the probability of outcome B.

0.15 0.25 0.4 0.6

(Total 1 mark)

Q7.

A spinner has ten sections, each labelled A, B, C or D.

	A	B	C	D
Probability	0.1	0.5	0.2	0.3

Give **one** reason why there **must** be a mistake in the table.

(Total 1 mark)

Q8.

The probability of Heads when a biased coin is thrown is 0.6
The coin is thrown 500 times.
Circle the expected number of Tails.

20 200 250 300

(Total 1 mark)

Q9.

An ordinary fair dice is thrown.
Circle the probability of getting a number greater than 4

$\frac{1}{6}$ $\frac{1}{4}$ $\frac{1}{3}$ $\frac{1}{2}$

(Total 1 mark)

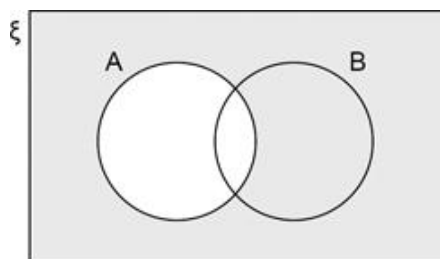
Q10.

Write down the probability of rolling a 5 on an ordinary fair dice.
Give your answer as a fraction.

Answer _____

(Total 1 mark)

Q11.



Which of these represents the shaded region?
Circle your answer.

B $A' \cup B$ $A' \cap B$ A'

(Total 1 mark)

Q12.

A coin is thrown 50 times.
The coin lands on heads 30 times.
Circle the relative frequency of landing on heads.

30

3 : 5

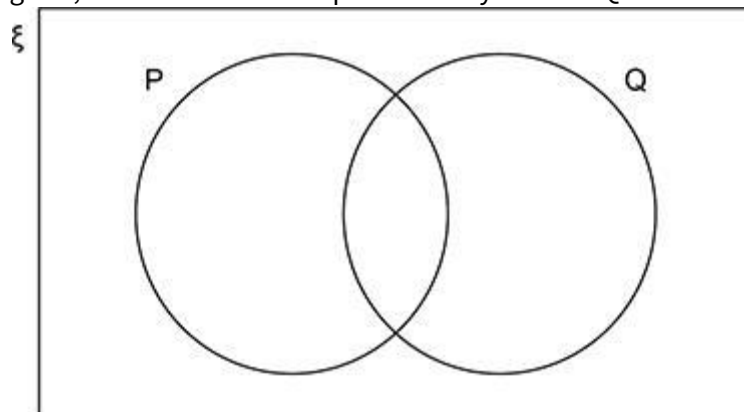
30%

$\frac{3}{5}$

(Total 1 mark)

Q13.

On the Venn diagram, shade the section represented by $P \cap Q$



(Total 1 mark)

Q14.

A coin is thrown 50 times.
The coin lands on heads 30 times.
Write down the relative frequency of landing on heads.

Answer _____

(Total 1 mark)

Q15.

What is the probability of rolling a 5 on an ordinary fair dice?
Circle your answer.

$\frac{1}{6}$

$\frac{1}{5}$

$\frac{5}{6}$

$\frac{1}{2}$

(Total 1 mark)

Q16.

What does $A \cup B$ represent in $P(A \cup B)$?
Circle your answer.

A or B or both
not A and not B

A but not B
A and B

(Total 1 mark)

Q17.

A fair ordinary dice is thrown once.
Circle the probability of getting a 2 or a 3

$\frac{1}{6}$

$\frac{2}{6}$

$\frac{3}{6}$

$\frac{5}{6}$

(Total 1 mark)

Q18.

Circle the expression that means the probability of A and **not** B.

$P(A' \cup B)$

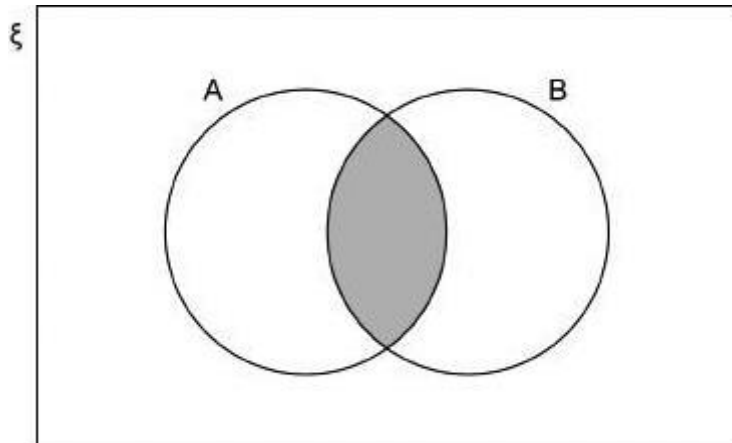
$P(A \cup B')$

$P(A' \cap B)$

$P(A \cap B')$

(Total 1 mark)

Q19.



Which of these represents the shaded region?
Circle your answer.

$A \cup B$

$(A \cap B)'$

$A \cap B$

$A' \cup B'$

(Total 1 mark)

Q20.

What does $(A \cap B)$ represent in $P(A \cap B)$?
Circle your answer.

A or B or both

A but not B

not A and not B

A and B

(Total 1 mark)

Q21.

A biased coin is thrown 250 times.
The relative frequency of Heads is worked out after every 50 throws.

Total number of throws	50	100	150	200	250
Relative frequency	0.4	0.29	0.4	0.32	0.3

Circle the best estimate of the probability of Heads.

0.3

0.32

0.342

0.4

(Total 1 mark)

Q22.

For a biased dice, $P(6) = \frac{3}{5}$
Circle the probability of two sixes when the dice is rolled twice.

$\frac{6}{25}$

$\frac{6}{10}$

$\frac{9}{25}$

$\frac{9}{5}$

(Total 1 mark)

Q23.

A fair coin is spun four times.
Circle the probability of getting four Heads.

$\frac{1}{2}$

2

$\frac{1}{8}$

$\frac{1}{16}$

(Total 1 mark)

Q24.

Circle the relative frequency that represents 13 successes out of 50 trials.

0.13

26

$13 : 50$

0.26

(Total 1 mark)

Q25.

A fair coin is thrown a number of times.

The probability that **every** throw results in Heads is $\frac{1}{64}$
How many times is the coin thrown?

Answer _____

(Total 1 mark)

Q26.

The probability that a biased coin lands on heads is $\frac{2}{3}$
The coin is spun twice.
Circle the probability of two heads.

$\frac{2}{9}$

$\frac{4}{6}$

$\frac{4}{9}$

$\frac{4}{3}$

(Total 1 mark)

Q27.

Adam and Bianca each throw the same biased coin.
Here is some information about their throws.

	Number of throws	Number of Heads
Adam	40	14
Bianca	60	20

Bianca says,

“My results give a better estimate of the probability of Heads than Adam’s results.”

Is she correct?

Tick a box.

Yes

☐

No

☐

Give a reason for your answer.

(Total 1 mark)