Probability – 2022 GCSE Mathematics Higher

1. June/2022/Paper_J560/04/No.17

There are 15 sweets in a bag.
10 of the sweets are toffee and 5 are mint.
Reece takes two of the sweets at random.

Work out the probability that Reece takes one of each type of sweet.

..... **[4]**

2. June/2022/Paper_J560/05/No.6

Morgan is playing a computer game.
They can score 0, 1, 2 or 3 points on each turn.
They record their scores for 100 turns.
The table shows the relative frequencies of their scores.

Score	0	1	2	3
Relative frequency	0.08	0.42	0.38	

(a) Complete the table. **[2]**

(b) Morgan says

I scored more than 160 points **in total** in my 100 turns.

Is Morgan correct?
Show how you decide.

..... **[4]**

3. June/2022/Paper_J560/05/No.8

A bag only contains red marbles, blue marbles and yellow marbles.

- The probability of picking a red marble is $\frac{2}{5}$.
- There are nine yellow marbles.
- The probability of picking a blue marble is three times as likely as picking a yellow marble.

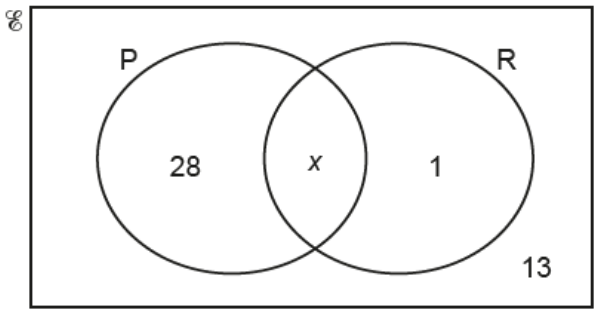
Work out the **total** number of marbles in the bag.
You must show your working.

..... **[5]**

4. June/2022/Paper_J560/05/No.14

In a survey about music, some students were asked whether they like pop (P) and whether they like rap (R).

The Venn diagram shows some of the results.
x students liked both types of music.



(a) The ratio of the number of students who liked pop to the number who liked rap was 5 : 2.

Work out the **total** number of students in the survey.

(a) ..... **[4]**

(b) One of the students is selected at random.

Find the probability that this student does **not** like rap given that they like pop.

(b) ..... **[2]**

5. June/2022/Paper_J560/06/No.1

A student rolls two fair four-sided dice each numbered 1, 2, 3 and 4.
They add the two scores together.

(a) Complete the sample space diagram to show the possible outcomes from the dice.

Second dice

First dice / Total	1	2	3	4
1	2			
2				
3				
4				8

[2]

(b) Find the probability that the student gets an even total.

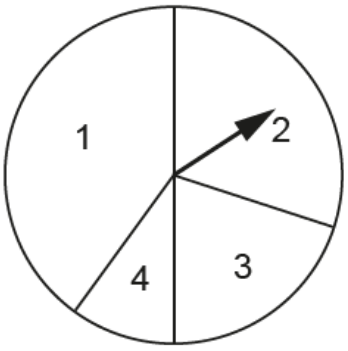
(b) ..... **[1]**

(c) Find the probability that the student gets the same score on each dice.

(c) ..... **[1]**

6. June/2022/Paper_J560/06/No.12

A student has a spinner with sectors numbered 1, 2, 3 and 4.



The table shows the probability of each score.

Score	1	2	3	4
Probability	0.4	0.3	0.2	0.1

The student spins the spinner twice.

Calculate the probability that the student gets the same score on each spin.

..... **[4]**