

GCSE Grade 7

Maths

Booklet 2

Paper 2H
Calculator

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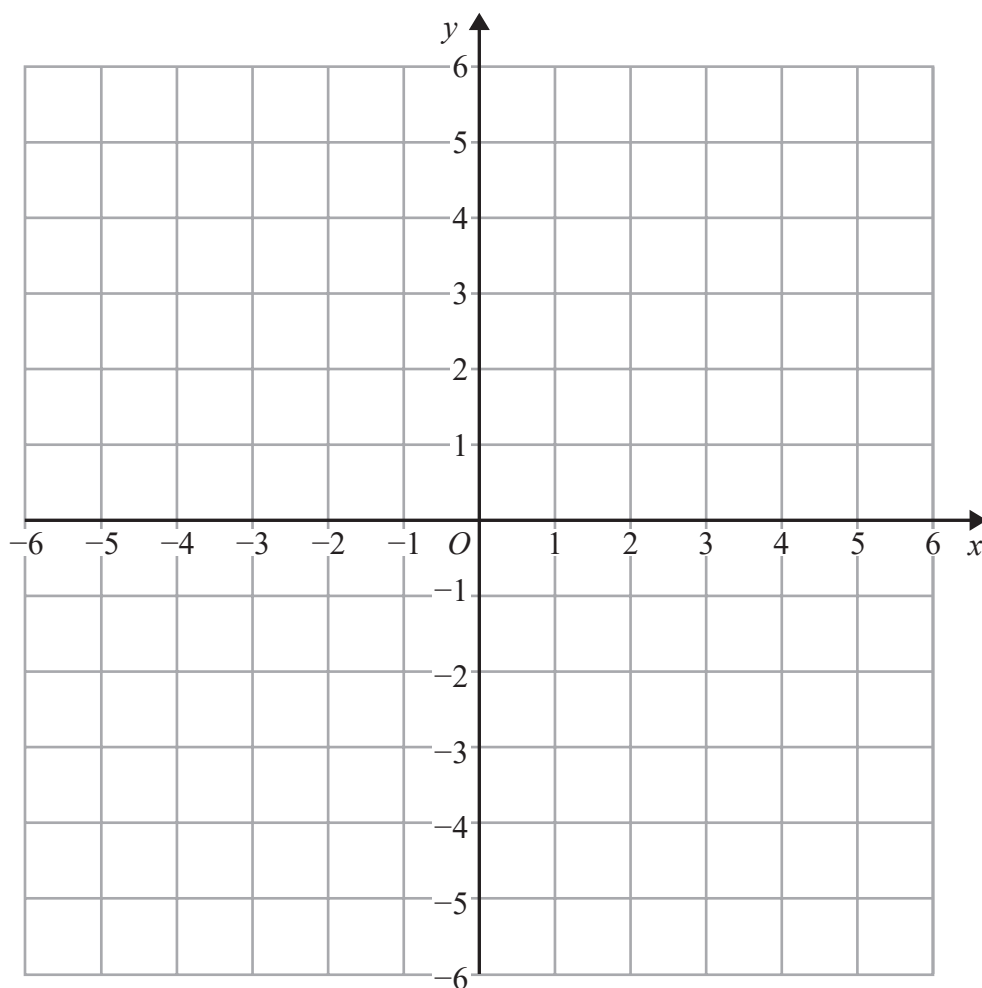
- 1 On the grid, shade the region that satisfies all these inequalities.

$$y > 1$$

$$x + y < 5$$

$$y > 2x$$

Label the region **R**.



(Total for Question 1 is 3 marks)



- 2 Tracey is going to choose a main course and a dessert in a cafe.
She can choose from 8 main courses and 7 desserts.

Tracey says that to work out the number of different ways of choosing a main course and a dessert you add 8 and 7

- (a) Is Tracey correct?

You must give a reason for your answer.

(1)

12 teams play in a competition.

Each team plays each other team exactly once.

- (b) Work out the total number of games played.

(2)

(Total for Question 2 is 3 marks)

- 3 Solve $(x - 2)^2 = 3$

Give your solutions correct to 3 significant figures.

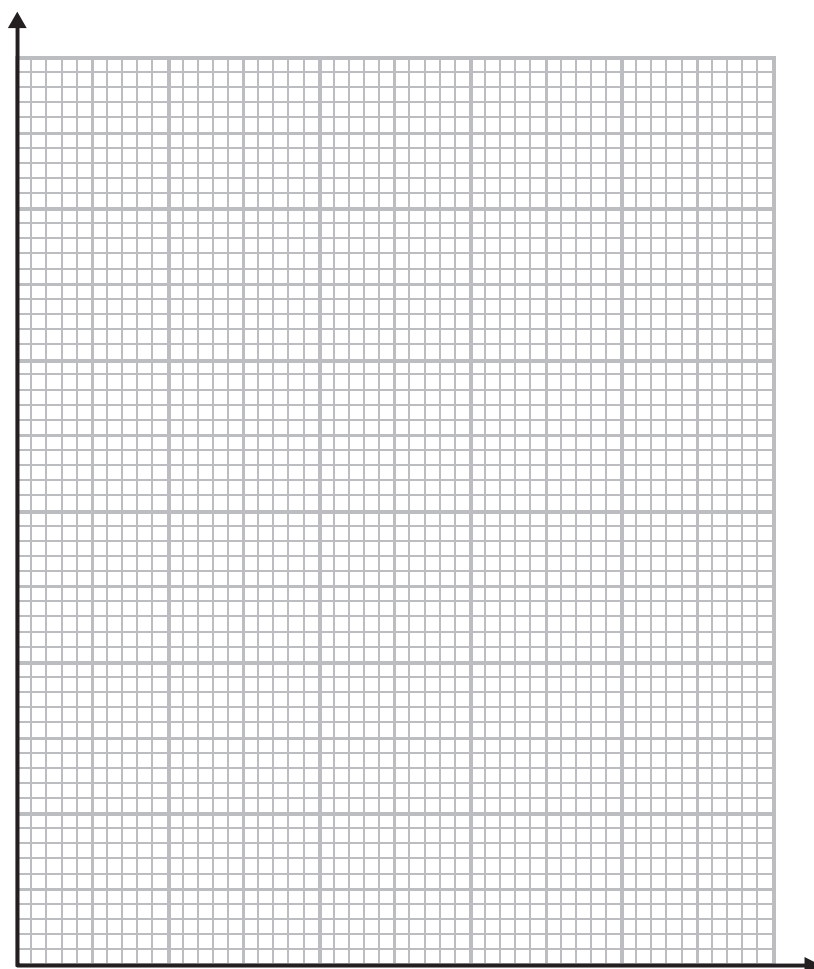
(Total for Question 3 is 2 marks)



- 4 The table gives information about the heights of 150 students.

Height (h cm)	Frequency
$140 < h \leq 150$	15
$150 < h \leq 155$	30
$155 < h \leq 160$	51
$160 < h \leq 165$	36
$165 < h \leq 180$	18

- (a) On the grid, draw a histogram for this information.



(3)

- (b) Work out an estimate for the fraction of the students who have a height between 150 cm and 170 cm.

(2)

(Total for Question 4 is 5 marks)



- 5 At time $t = 0$ hours a tank is full of water.

Water leaks from the tank.

At the end of every hour there is 2% less water in the tank than at the start of the hour.

The volume of water, in litres, in the tank at time t hours is V_t

Given that

$$V_0 = 2000$$

$$V_{t+1} = kV_t$$

write down the value of k .

$$k = \dots\dots\dots$$

(Total for Question 5 is 1 mark)



- 6 Saffron wants to work out an estimate for the total number of fish in a lake.

On Friday, Saffron catches 180 fish from the lake.

She puts a tag on each of these fish and puts them back into the lake.

On Saturday, Saffron catches 305 fish from the same lake.

She finds that 45 of the 305 fish are tagged.

Work out an estimate for the total number of fish in the lake.

.....
(Total for Question 6 is 3 marks)



- 7 The ratio of Marta's hourly pay to Khalid's hourly pay is 6 : 5

Both Marta and Khalid get an increase of £1.50 in their hourly pay.

The ratio of Marta's hourly pay to Khalid's hourly pay after this increase is 13 : 11

Work out the hourly pay before the increase for Marta and for Khalid.

Marta £.....

Khalid £.....

(Total for Question 7 is 4 marks)



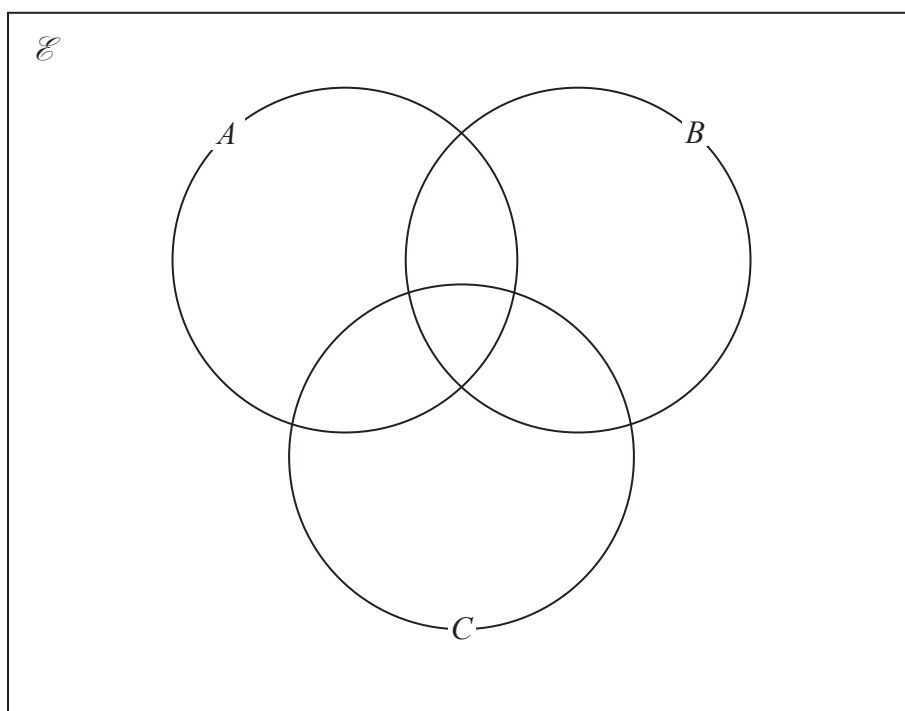
- 8 A shop manager wants to advertise special offers on social media platforms.

The manager asks 100 customers which of type A , type B or type C they use.

Of these customers,

- 4 use all three types
- 16 do not use any of type A , type B or type C
- 8 use both type A and type B , but not type C
- 14 use both type B and type C
- 62 in total use type A
- all 20 who use type C also use at least one of type A and type B .

- (a) Complete the Venn diagram for this information.



(4)

One of the customers is chosen at random.

Given that this customer uses type A ,

- (b) find the probability that this customer also uses type B .

(2)

(Total for Question 8 is 6 marks)

