

MR BRADDER MATHS

Mr Bradder Maths	
Predicted Paper 5	= Came on <u>Real</u> PAPER 5
June 2025	= Came on <u>Real</u> PAPER 6
You may use: • geometrical instruments • tracing paper Do not use: • a calculator	MR BRADDER MATHS
Please write clearly in black ink. Do	not write in the barcodes.
Centre number	Candidate number
First name(s)	

INSTRUCTIONS

- · Use black ink. You may use an HB pencil for graphs and diagrams.
- · Answer all the questions.
- Read each question carefully before you start to write your answer.
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.
- · Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).

INFORMATION

- The total mark for this paper is 113
- The marks for each question are shown in brackets [].
- This document consists of 16 pages.

1 Write 75 as a product of its prime factors.



2 A clock chimes every 20 minutes. A light flashes every 8 minutes. The clock chimes and the light flashes to rether at to:00. How many times between 00:01 and 12:30 will the clock chime and the light flash together? Show your working.

[5]		
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3 Work out. $3\frac{4}{7}x\frac{7}{9}$ Give your answer as a mixed number in its simplest form.

.....[3]

A car accelerates at 4.06 m/s² for 10.1 seconds from an initial velocity of 2.93 m/s.



Using Harper's method, show that their answer is wrong.

The perimeter of the rectangle is 46 cm.

Calculate the area of the rectangle.

..... cm²[5]

7 Gemma's solution to the inequality 3x + 1 > -5 is shown on the number line

.....[3]

8 Naomi is given a 10% pay decrease.

Her new wage is £252 per week.

What would be her weekly wage if, instead, she had received a 10% pay increase?

£.....[5]

9 (a) Write 5/6 as a recurring decimal.

(b)		.[3]
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A car mechanic has a tin containing 5 litres of engine oil. 10

> Each week they use 450 millitres of this oil for their vehicles The car mechanic says After 9 weeks will have user over 80% of the oil in this tin. Are they correct? Show how you decide.

Solve by factorisation. 11

 $2x^2 - 19x - 33 = 0$

x =[3]

(a) Draw the image of triangle A after a reflection in the line y = -1.

[2]

(b) Describe fully the single transformation that maps triangle A onto triangle B.

.....

(c) Complete this statement.

[2]

[3]

The volume of the cone is **equal to** the volume of the cylinder.

Work out the value of **r**.

[The volume V of a cone with radius r and height h is $V = \frac{1}{3} \pi r^2 h$]

.....[5]

17 The diagram shows two right-angled triangles ABD and BCD, sharing a common side BD.AD = 10 cm, BC = 12 cm and angle DBC = 60°.

Work out the length of AB.

..... cm [6]

[2]

(b) The graph of $y = \cos(x - 30)$ for $0^{\circ} \le x \le 360^{\circ}$ crosses the x-axis in two places.

Write down the values of x where this occurs.

x =[2]

- the probability that it will rain on Monday is 0.55 and
- the probability that it will rain on Tuesday is 0.25.

Ella draws a tree diagram to show this information.

Write down three errors that Ella has made with her tree diagram.

2	
3	

The region R satisfies the following conditions:

By drawing one more line, find and label the region R.

The area of the sector is $40\pi\,cm^2$.

Work out the perimeter of the sector.

Give your answer in the form a + b π , where a and b are integers.

You must show your working.

..... cm [6]

22 Simplify fully.

.....[5]

23 Here are the first four terms of a quadratic sequence.

2 15 34 59

The nth term is $an^2 + bn + c$. Find the values of a, b and c.

a =
b =
c =
[4]

Give your answers in surd form as simply as possible.

(ii) x =[4]

(b) Sketch the graph of $x^2 + 4x - 16$ showing clearly the coordinates of any turning points.

