Write your name and class in the boxes below before you start.

Candidate surname	Other names

Class	Teacher	Date

DNEP Education

GCSE Resit · Predicted Paper 1H · November 2026

Time: **90 minutes**

Paper reference

DNEP/AQA1HN26

Mathematics

PREDICTED PAPER 1 — NOVEMBER 2026

Higher Tier · AQA GCSE Mathematics (8300) style

Questions written for DNEP Education in the style of AQA GCSE Mathematics (8300) papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. You must NOT use a calculator. Tracing paper may be used.

Total Marks

/ 80

Topics in this paper

Topic (lesson)	Questions	Marks
Number	1, 2, 3, 9, 10, 17, 19	17
Ratio & proportion	4, 5, 16	9
Algebra	6, 14, 15, 21, 22, 25, 26	22
Probability	7, 13	8
Geometry & measures	8, 11, 18, 20, 23, 24	19
Statistics	12	5
		Total 80

Instructions

- Use black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page with your name, class, teacher and the date.
- Answer all questions in the spaces provided — there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators must not be used.

Information

- The total mark for this paper is 80.
- The marks for each question are shown in brackets — use this as a guide to how much time to spend on each question.
- When you have finished, mark your answers with your teacher and complete the RAG feedback page at the back.
- This is a predicted paper. No-one can know what will be on the real paper, so revise the whole course, not just these topics.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1 Circle the answer to 0.4×0.03

1.2 0.12 0.012 0.0012

[1 mark]

2 Two buses leave a bus station at 8:15 am.

The number 4 bus then leaves every 12 minutes.
The number 9 bus then leaves every 18 minutes.

At what time will both buses next leave the bus station at the same time?

Answer .....

[2 marks]

3 Work out $3\frac{3}{4} - 1\frac{5}{6}$

Give your answer as a mixed number.

Answer .....

[2 marks]

4 In a sale, all prices are reduced by 15%.
The sale price of a rucksack is £51

Work out the price of the rucksack before the sale.

Answer £ .....

[3 marks]

DO NOT WRITE IN THIS AREA

5 In a car park, the vehicles are cars, vans and motorbikes.

cars : vans = 7 : 2
vans : motorbikes = 4 : 3

There are 105 vehicles in the car park.

How many more cars than motorbikes are in the car park?

Answer .....

[3 marks]

6 Solve $\frac{5x + 2}{3} > 2x - 1$

Answer .....

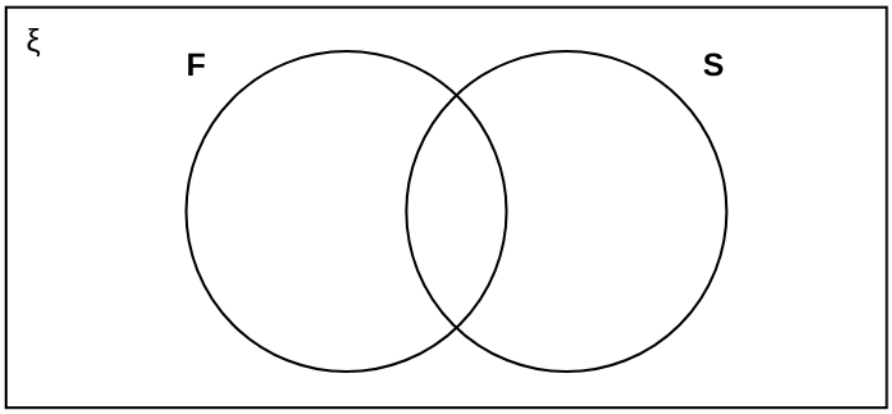
[3 marks]

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7 There are 60 students in Year 11 at a small school.

34 students study French (F).
25 students study Spanish (S).
9 students study neither French nor Spanish.

(a) Complete the Venn diagram.



[2 marks]

(b) A student is chosen at random.
Work out the probability that the student studies exactly one of these languages.

Answer .....

[1 mark]

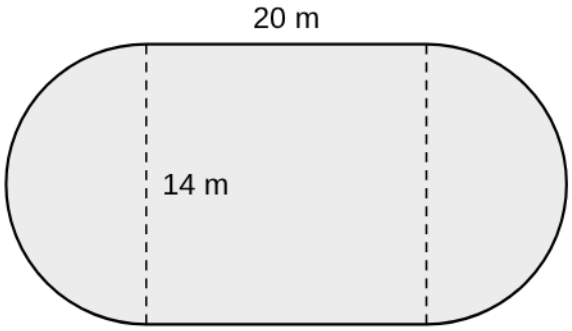
(c) A student who studies Spanish is chosen at random.
Work out the probability that this student also studies French.

Answer .....

[1 mark]

DO NOT WRITE IN THIS AREA

8 The diagram shows a playground.
It is made from a rectangle and two semicircles.



Not drawn accurately

The rectangle is 20 m long and 14 m wide.
The diameter of each semicircle is 14 m.

Work out the area of the playground.
Give your answer in terms of π.

Answer ..... m^2

[3 marks]

9 Work out $(6 \times 10^4) \div (1.5 \times 10^{-2})$

Give your answer in standard form.

Answer .....

[2 marks]

DO NOT WRITE IN THIS AREA

10 **(a)** Simplify $(2x^3)^4$

Answer .....

[1 mark]

(b) Work out the value of $16^{\frac{3}{4}}$

Answer .....

[1 mark]

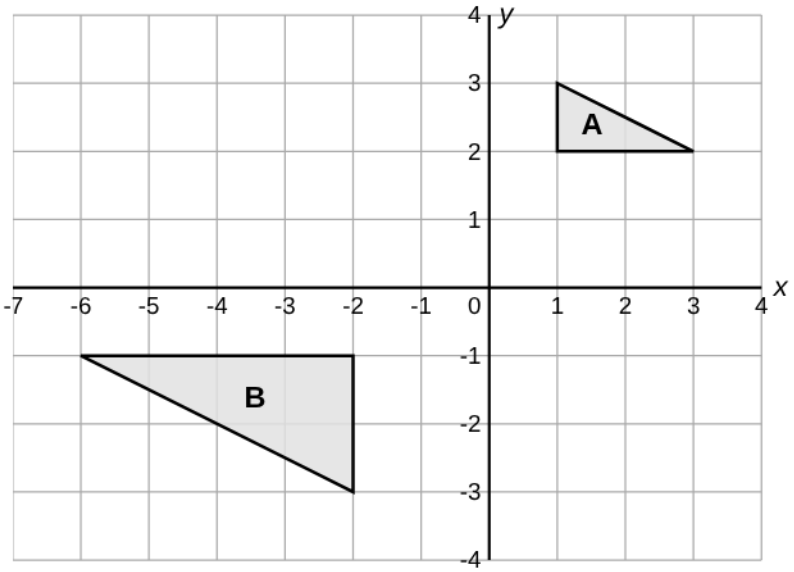
(c) Work out the value of $\left(\frac{8}{27}\right)^{-\frac{2}{3}}$

Give your answer as a fraction.

Answer .....

[2 marks]

11 Describe fully the single transformation that maps triangle A onto triangle B.



.....

.....

[3 marks]

DO NOT WRITE IN THIS AREA

12 80 people each completed a puzzle.
The table shows information about the times they took.

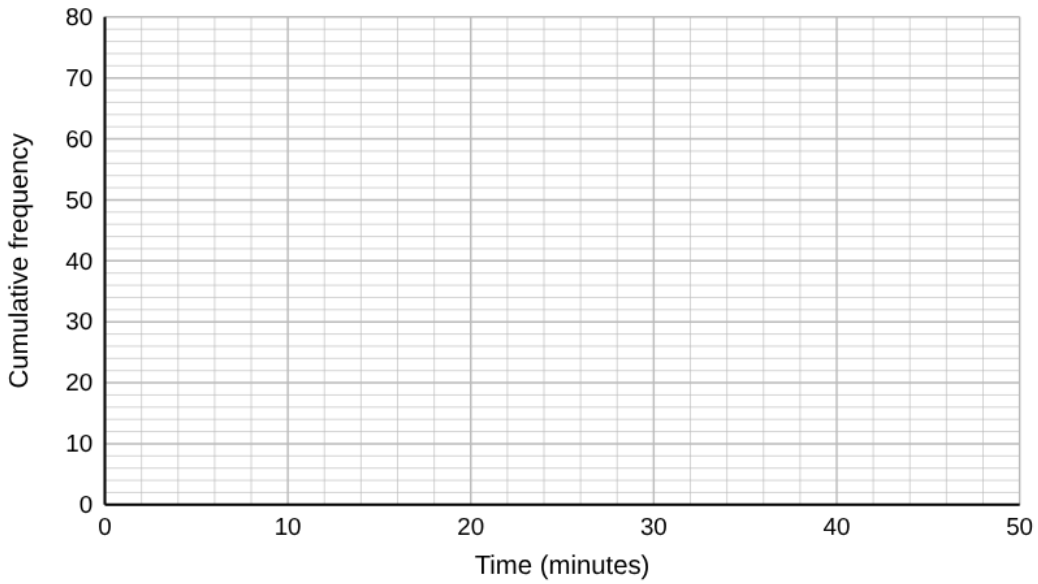
Time, t (minutes)	Frequency
$0 < t \leq 10$	6
$10 < t \leq 20$	14
$20 < t \leq 30$	28
$30 < t \leq 40$	22
$40 < t \leq 50$	10

(a) Complete the cumulative frequency table.

Time, t (minutes)	Cumulative frequency
$0 < t \leq 10$	6
$0 < t \leq 20$	
$0 < t \leq 30$	
$0 < t \leq 40$	
$0 < t \leq 50$	

[1 mark]

(b) On the grid, draw a cumulative frequency graph for the data.



[2 marks]

(c) Use your graph to estimate the number of people who took **more** than 35 minutes.

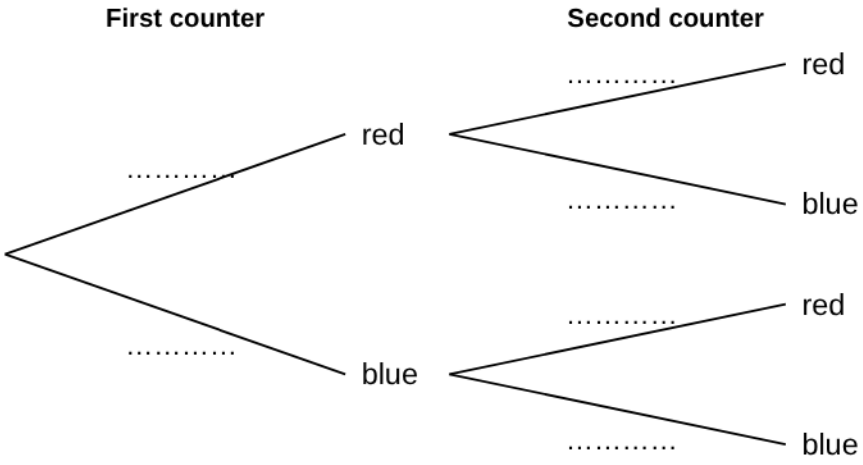
Answer .....

[2 marks]

DO NOT WRITE IN THIS AREA

13 A bag contains 5 red counters and 3 blue counters.
Two counters are taken from the bag at random, without replacement.

(a) Complete the tree diagram.



[2 marks]

(b) Work out the probability that the two counters are the same colour.

Answer .....

[2 marks]

14 Solve the simultaneous equations

$$4x + 3y = 9$$
$$6x - 5y = 23$$

Do **not** use trial and improvement.
You must show your working.

x = ...

y = ...

[3 marks]

DO NOT WRITE IN THIS AREA

15 Here are the first five terms of a quadratic sequence.

4 11 22 37 56

Work out an expression for the nth term of the sequence.

Answer .....

[3 marks]

16 y is inversely proportional to x^2

When $x = 4$, $y = 5$

(a) Write a formula for y in terms of x.

Answer .....

[2 marks]

(b) Work out the value of y when $x = 10$

Answer .....

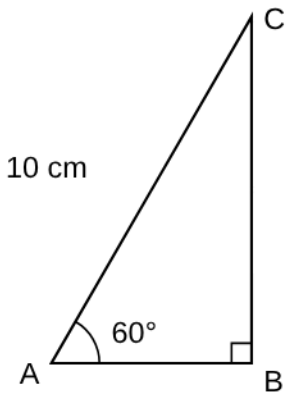
[1 mark]

17 Prove that $0.2\dot{7} = \frac{5}{18}$

[2 marks]

DO NOT WRITE IN THIS AREA

18 **(a)**



ABC is a right-angled triangle.

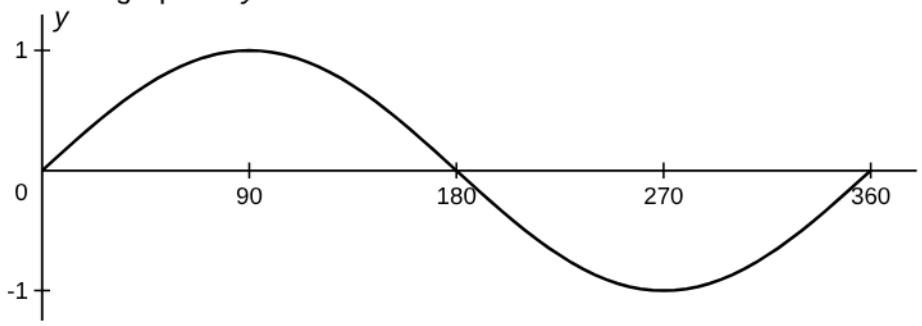
Not drawn accurately

Work out the **exact** length of BC.

Answer ..... cm

[2 marks]

(b) Here is the graph of $y = \sin x$ for $0° \leq x \leq 360°$



sin 30° = 0.5

Write down the other value of x between 0° and 360° for which $\sin x = 0.5$

Answer ..... degrees

[1 mark]

DO NOT WRITE IN THIS AREA

19 **(a)** Simplify fully $\sqrt{75} + \sqrt{12}$

Answer .....

[2 marks]

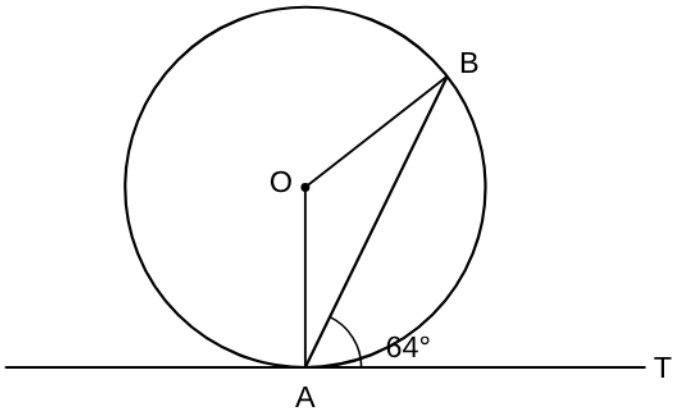
(b) Rationalise the denominator and simplify fully $\frac{12}{3 - \sqrt{3}}$

Answer .....

[2 marks]

DO NOT WRITE IN THIS AREA

20 A and B are points on a circle, centre O.
AT is a tangent to the circle at A.



Not drawn accurately

Angle TAB = 64°

Work out the size of angle AOB.
Give reasons for your answer.

Answer ..... degrees

[4 marks]

21 Simplify fully $\dfrac{x^2 - 9}{2x^2 + 5x - 3}$

Answer .....

[3 marks]

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22 **(a)** Write $x^2 - 6x + 11$ in the form $(x - a)^2 + b$

Answer .....

[2 marks]

(b) Use your answer to part (a) to explain why $x^2 - 6x + 11$ is positive for all values of x.

.....

.....

[1 mark]

23 Two bottles are mathematically similar.

The surface area of the smaller bottle is 180 cm^2

The surface area of the larger bottle is 320 cm^2

The volume of the smaller bottle is 270 cm^3

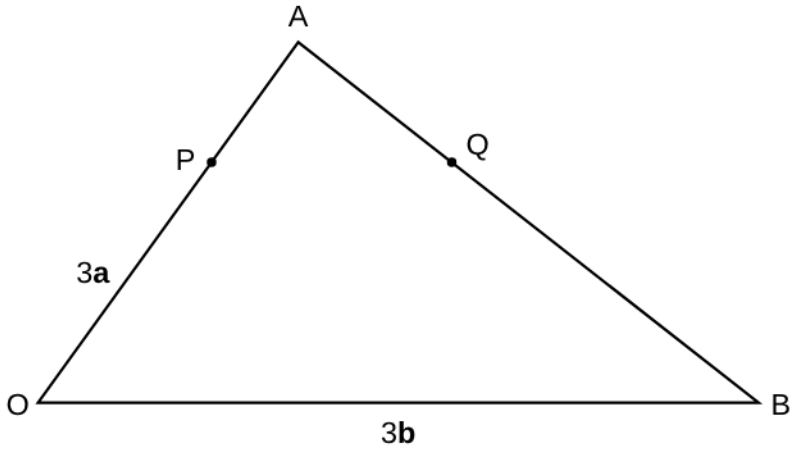
Work out the volume of the larger bottle.

Answer ..... cm^3

[3 marks]

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24 OAB is a triangle.



Not drawn accurately

$\overrightarrow{OA} = 3\mathbf{a}$ $\overrightarrow{OB} = 3\mathbf{b}$

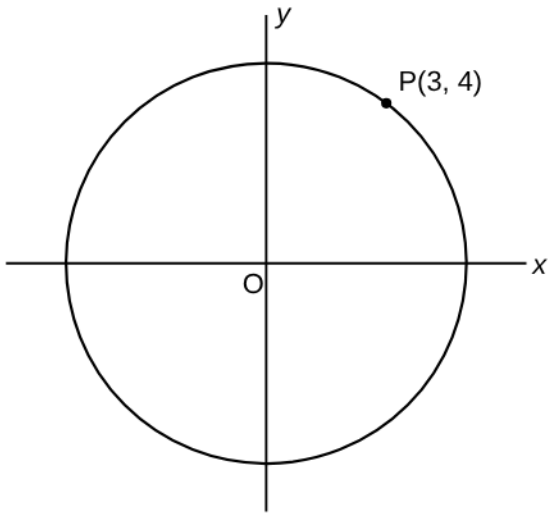
P is the point on OA such that OP : PA = 2 : 1
Q is the point on AB such that AQ : QB = 1 : 2

Prove that PQ is parallel to OB.

[3 marks]

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25 The diagram shows the circle $x^2 + y^2 = 25$



Not drawn accurately

The point P(3, 4) lies on the circle.

Work out the equation of the tangent to the circle at P.
Give your answer in the form $y = mx + c$

Answer .....

[4 marks]

26 Prove that the difference between the squares of any two consecutive odd numbers is always a multiple of 8

[3 marks]

TOTAL FOR PAPER IS 80 MARKS

Now mark your paper and complete the RAG feedback page overleaf.

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Your results and next steps (RAG feedback)

Mark your paper with the mark scheme. Write your mark for each question, then colour one circle: GREEN = full marks · AMBER = some marks · RED = no marks. Use the topic table to decide which lessons to revisit.

Q	Topic (lesson)	Calc?	Marks	My mark	R A G
1	Number	No	1		
2	Number	No	2		
3	Number	No	2		
4	Ratio & proportion	No	3		
5	Ratio & proportion	No	3		
6	Algebra	No	3		
7	Probability	No	4		
8	Geometry & measures	No	3		
9	Number	No	2		
10	Number	No	4		
11	Geometry & measures	No	3		
12	Statistics	No	5		
13	Probability	No	4		
14	Algebra	No	3		
15	Algebra	No	3		
16	Ratio & proportion	No	3		
17	Number	No	2		
18	Geometry & measures	No	3		
19	Number	No	4		
20	Geometry & measures	No	4		
21	Algebra	No	3		
22	Algebra	No	3		
23	Geometry & measures	No	3		
24	Geometry & measures	No	3		
25	Algebra	No	4		
26	Algebra	No	3		
			Total 80		= _____ %

Your results and next steps (continued)

By topic

Topic (lesson)	Questions	My marks	R	A	G
Number	1, 2, 3, 9, 10, 17, 19	____ / 17	○	○	○
Ratio & proportion	4, 5, 16	____ / 9	○	○	○
Algebra	6, 14, 15, 21, 22, 25, 26	____ / 22	○	○	○
Probability	7, 13	____ / 8	○	○	○
Geometry & measures	8, 11, 18, 20, 23, 24	____ / 19	○	○	○
Statistics	12	____ / 5	○	○	○

What went well (my GREEN topics)

Even better if (my RED / AMBER topics)

Lessons I will revisit (lesson numbers) and how:

Teacher comment

Signed: _____

How likely is each topic on November Higher Paper 1?

Based on the 8 November AQA 8300 Higher Paper 1s we analysed (Nov17–Nov24). Chance = how many of those November papers tested the topic. The real paper can test anything on the specification, so use this to decide what to revise first, not what to leave out. The November 2025 paper is not included.

Very likely (75%+) Likely (50%+) Possible (25%+) Unlikely (under 25%)

Topic	Nov papers	Chance	Last Nov	This paper
Simplify, expand, factorise, substitute	8 of 8	100%	Nov24	Q10, Q21, Q26
Ratio	7 of 8	88%	Nov23	Q5, Q24
Surds	7 of 8	88%	Nov24	Q19
Cumulative frequency and box plots	6 of 8	75%	Nov23	Q12
Exact trig values and trig graphs	6 of 8	75%	Nov24	Q18
Index laws	6 of 8	75%	Nov24	Q10
Number skills (decimals, place value, FDP)	6 of 8	75%	Nov24	Q1
Circles and π	6 of 8	75%	Nov24	Q8
Sequences and nth term	6 of 8	75%	Nov24	Q15
Coordinates and straight-line graphs	5 of 8	62%	Nov24	Q25
Probability (trees, combined events)	5 of 8	62%	Nov23	Q13
Fraction arithmetic (all four operations)	5 of 8	62%	Nov24	Q3
Fractional and negative indices	5 of 8	62%	Nov23	Q10
Transformations	5 of 8	62%	Nov24	Q11
Inequalities	4 of 8	50%	Nov24	Q6
Linear equations, function machines	4 of 8	50%	Nov24	—
Averages, spread & comparing data	4 of 8	50%	Nov24	—
Prime factors, HCF and LCM	4 of 8	50%	Nov23	Q2
Proportion (unitary, inverse, algebraic)	4 of 8	50%	Nov24	Q16
Vectors (column vectors and proof)	4 of 8	50%	Nov23	Q24
Venn diagrams	4 of 8	50%	Nov24	Q7
Charts, tables and scatter graphs	4 of 8	50%	Nov23	—
Circle theorems	4 of 8	50%	Nov22	Q20
Algebraic fractions ★	3 of 8	38%	Nov20	Q21
Recurring decimals to fractions	3 of 8	38%	Nov24	Q17
Standard form	3 of 8	38%	Nov23	Q9
Angles, parallel lines, polygons	3 of 8	38%	Nov23	Q20
Rounding, estimation, error intervals	3 of 8	38%	Nov24	—
Simultaneous equations ★	3 of 8	38%	Nov21	Q14
Transforming graphs	3 of 8	38%	Nov24	—
Speed, density, pressure ★	3 of 8	38%	Nov21	—
Conditional probability	3 of 8	38%	Nov23	Q7
Percentages	3 of 8	38%	Nov23	Q4
Quadratics	3 of 8	38%	Nov23	Q21, Q22
Sine/cosine rules and ½ab sin C	3 of 8	38%	Nov24	—
Perimeter, area, volume ★	2 of 8	25%	Nov21	Q8
Proof	2 of 8	25%	Nov22	Q17, Q24, Q26
Pythagoras and right-angled trigonometry ★	2 of 8	25%	Nov20	Q18
Completing the square	2 of 8	25%	Nov24	Q22
Equation of a circle and tangents	2 of 8	25%	Nov24	Q25
Quadratic inequalities	2 of 8	25%	Nov23	—
Similar shapes (area and volume) ★	2 of 8	25%	Nov20	Q23
Constructions and loci	1 of 8	12%	Nov24	—
Functions (composite and inverse)	1 of 8	12%	Nov23	—
Histograms ★	1 of 8	12%	Nov20	—

★ = not on recent November papers, so it may be due. — in the last column = not in this paper: revise it separately.