



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2014
Mathematics
(Project Maths – Phase 3)

Paper 1

Foundation Level

Friday 6 June Afternoon 2:00 – 4:30

300 marks

Examination number

Centre stamp

Running total	
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For examiner	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Total	

Grade

Instructions

There are **two** sections in this examination paper.

Section A	Concepts and Skills	200 marks	8 questions
Section B	Contexts and Applications	100 marks	2 questions

Answer all ten questions.

Write your answers in the spaces provided in this booklet. You may lose marks if you do not do so. There is space for extra work at the back of the booklet. You may also ask the superintendent for more paper. Label any extra work clearly with the question number and part.

The superintendent will give you a copy of the *Formulae and Tables* booklet. You must return it at the end of the examination. You are not allowed to bring your own copy into the examination.

You will lose marks if all necessary work is not clearly shown.

Answers should include the appropriate units of measurement, where relevant.

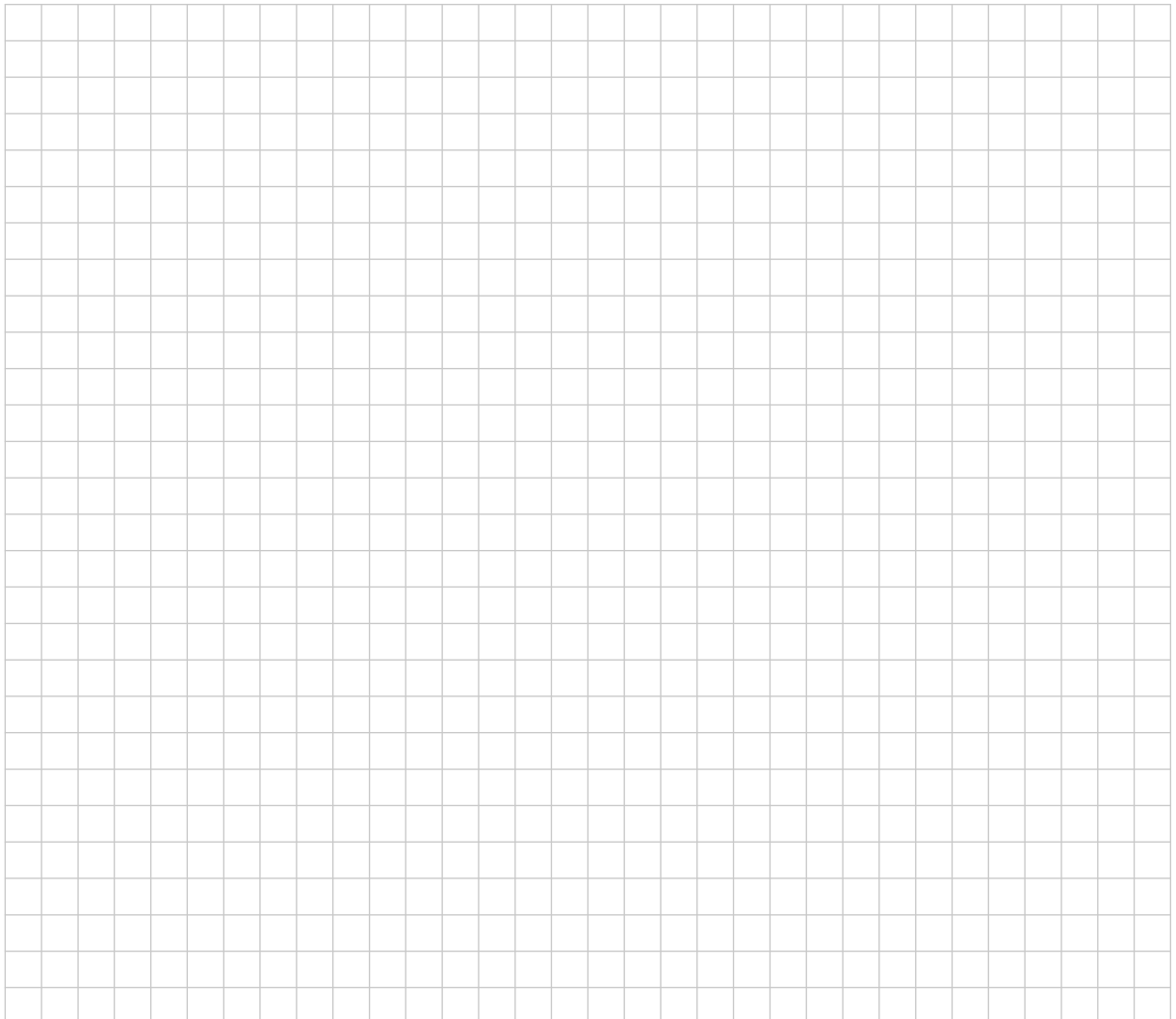
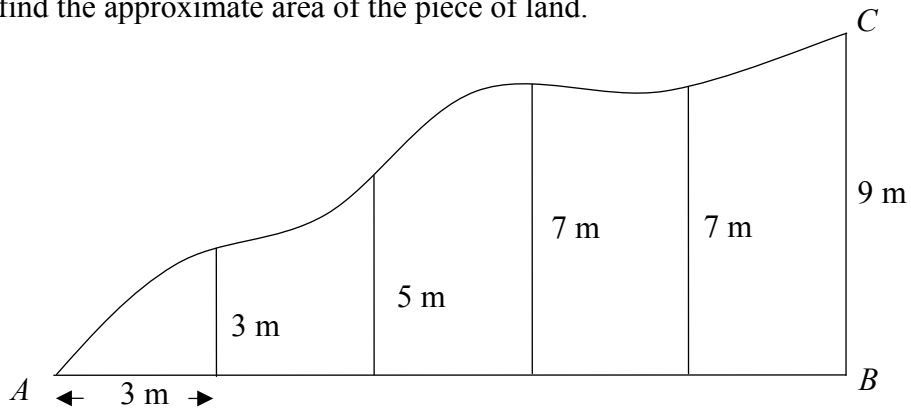
Answers should be given in simplest form, where relevant.

Write the make and model of your calculator(s) here:

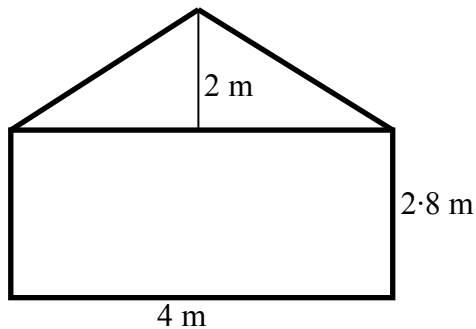
Question 4

(25 marks)

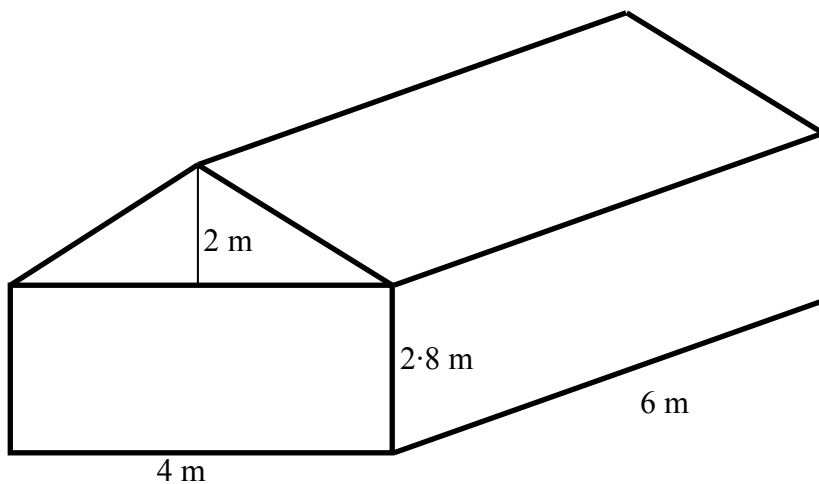
- (a) A surveyor needed to find the area of a small piece of land, bounded in part by two straight walls $[AB]$ and $[BC]$. He divided $[AB]$ into five equal parts. Each part is 3 m long. The distance to the boundary from each part is shown in the diagram below. Use the Trapezoidal Rule to find the approximate area of the piece of land.



(b) (i) The diagram below shows the end wall of a shed. Find the area of the end wall.



(ii) The diagram below shows the shed. Find the volume of the shed.



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Question 6

(25 marks)

(a) Find the value of $x^2 - 2x + 5$ when $x = -3$.

(b) Simplify $3(5a - 1) - 4(a - 2)$.

(c) Solve the equation $m^2 + 2m - 5 = 0$. Give your answers correct to one decimal place.

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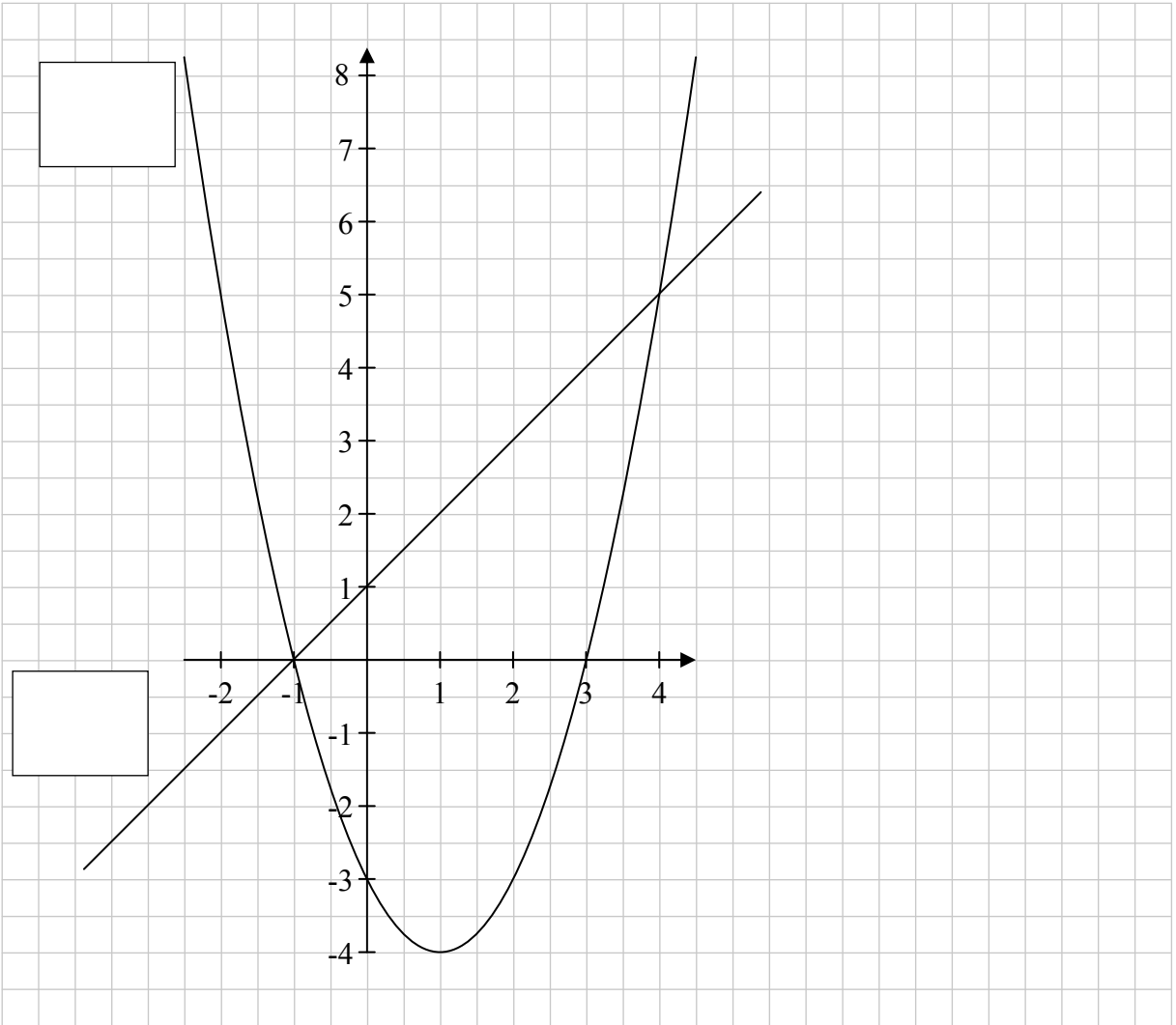
Question 8

(25 marks)

- (a) The function $f : x \mapsto 3 - 2x$ is defined for all values of $x \in \mathbb{R}$. Find the value of $f(-3)$.

- (b) The graphs of two functions are shown on the axes below. The functions are:

$$g(x) = x + 1, x \in \mathbb{R} \quad \text{and} \quad h(x) = x^2 - 2x - 3, x \in \mathbb{R}.$$



- (i) Identify the functions by writing $g(x)$ or $h(x)$ in the blank boxes on the diagram above.

Use the diagram to answer the questions below. Show your work on the diagram.

- (ii) Find the value of $h(1.5)$. Answer: _____
- (iii) Find the value of x for which $g(x) = 3$. Answer: _____
- (iv) Find the values of x for which $h(x) = g(x)$. Answers: _____ and _____

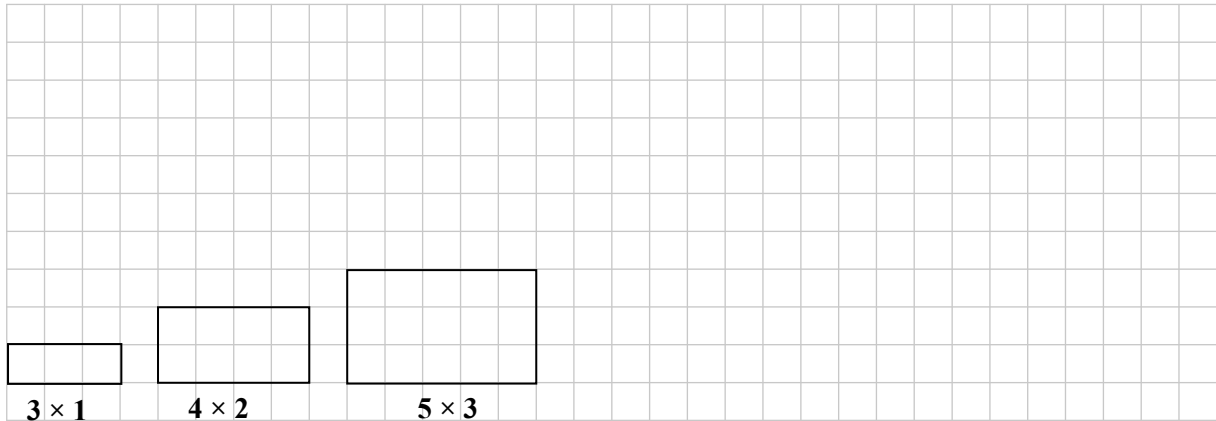
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Answer **both** Question 9 **and** Question 10 from this section.

Question 9**(50 marks)**

(a) A pattern of rectangles is shown in the diagram below.

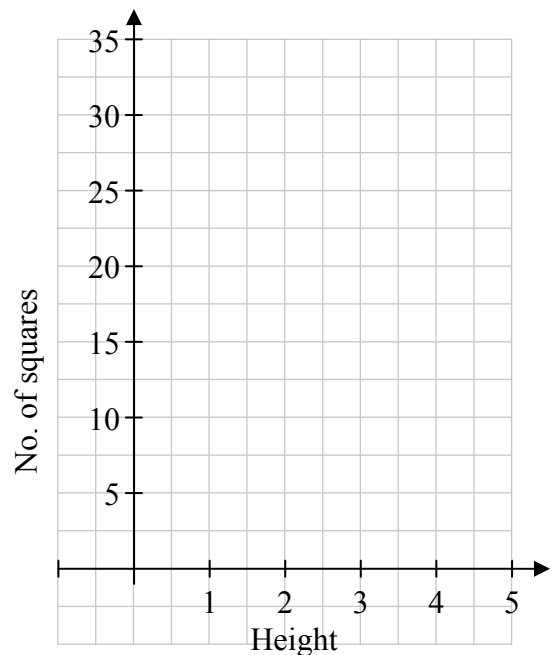
(i) Draw the next two rectangles in the pattern. Write the dimensions (i.e. 3×1 , 4×2 , etc.) under them.



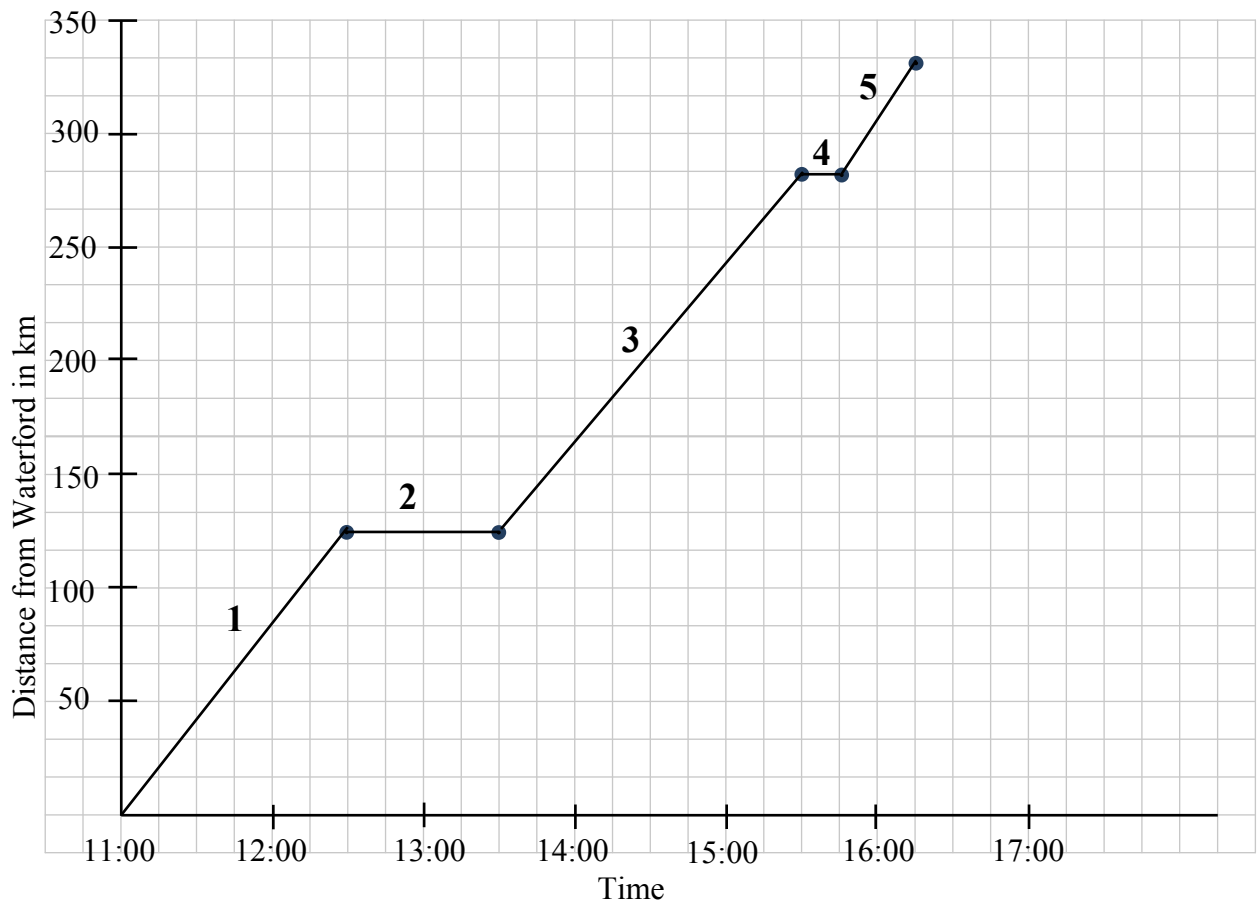
(ii) Complete the table below.

Height of rectangle	No. of small squares in the rectangle.
1	3
2	8
3	
4	
5	

(iii) Plot the 5 points from your table ((1, 3), (2, 8), etc.) on the given axes.



(c) Amanda travelled from Waterford to Belfast. The graph below shows the 5 stages of her journey.



The stages of the journey are labelled 1, 2, 3, 4, and 5 on the graph.

There are five statements below, labelled with letters A, B, C, D, and E.

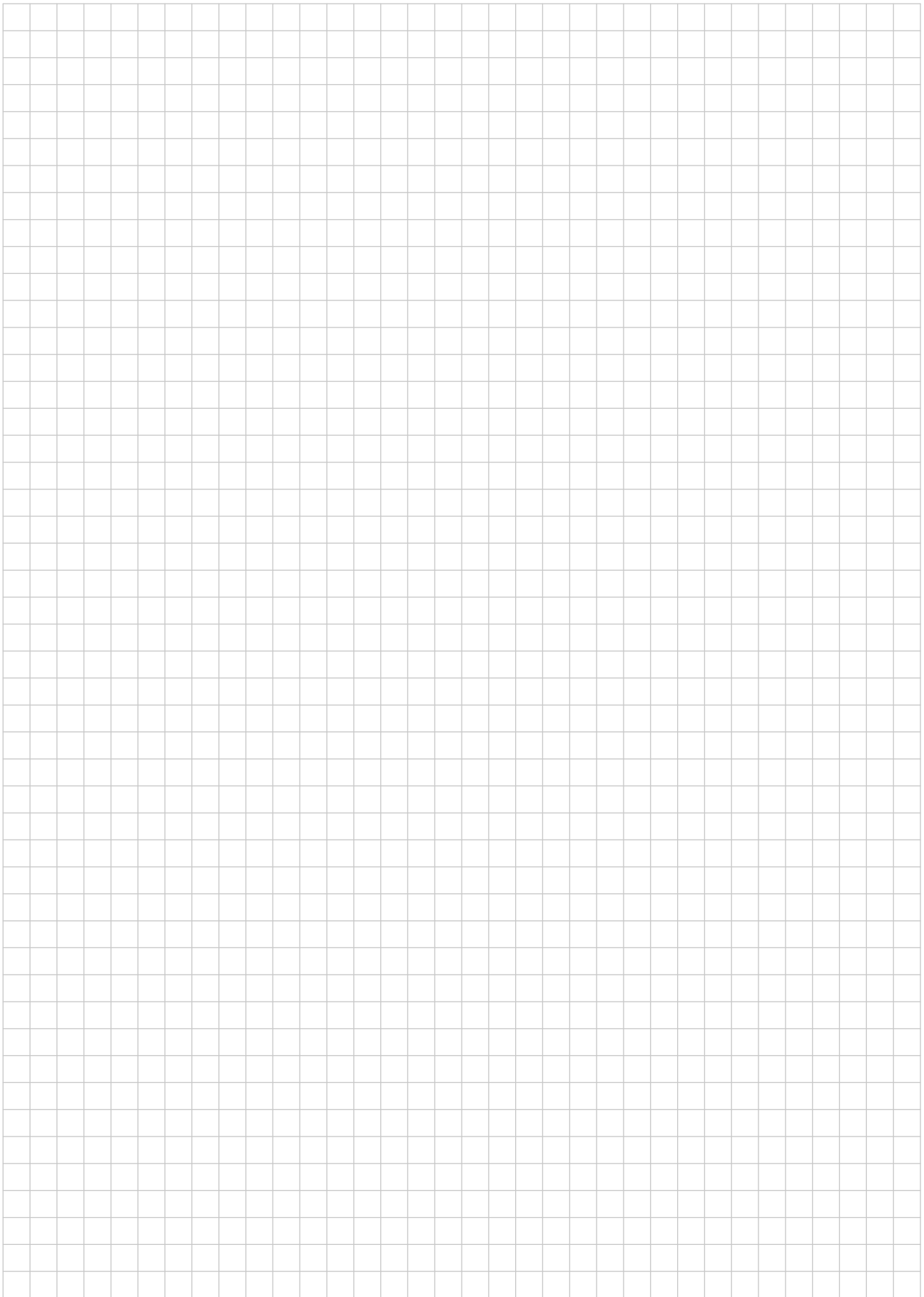
- A. She takes about 15 minutes to change the wheel.
- B. She drives steadily and arrives in Belfast around 16:15.
- C. She stops for lunch for about an hour.
- D. She sets out from Waterford at 11:00 and drives at a steady speed until lunchtime.
- E. She drives steadily for about 2 hours.

In the table below, insert the letters A, B, C, D, and E to match each one of the statements above with a stage of her journey.

Stages of her journey	Statement
1	
2	
3	
4	
5	

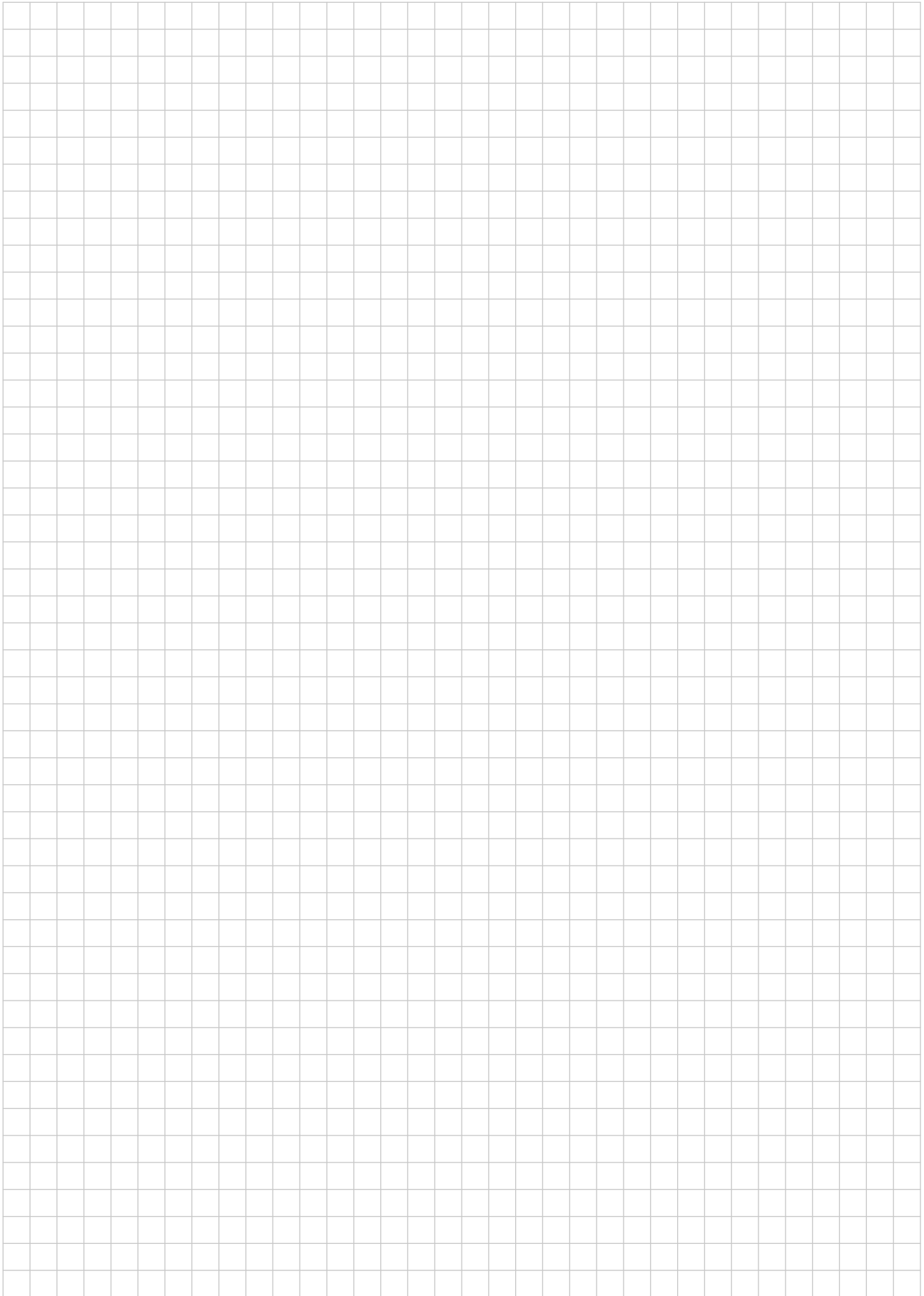
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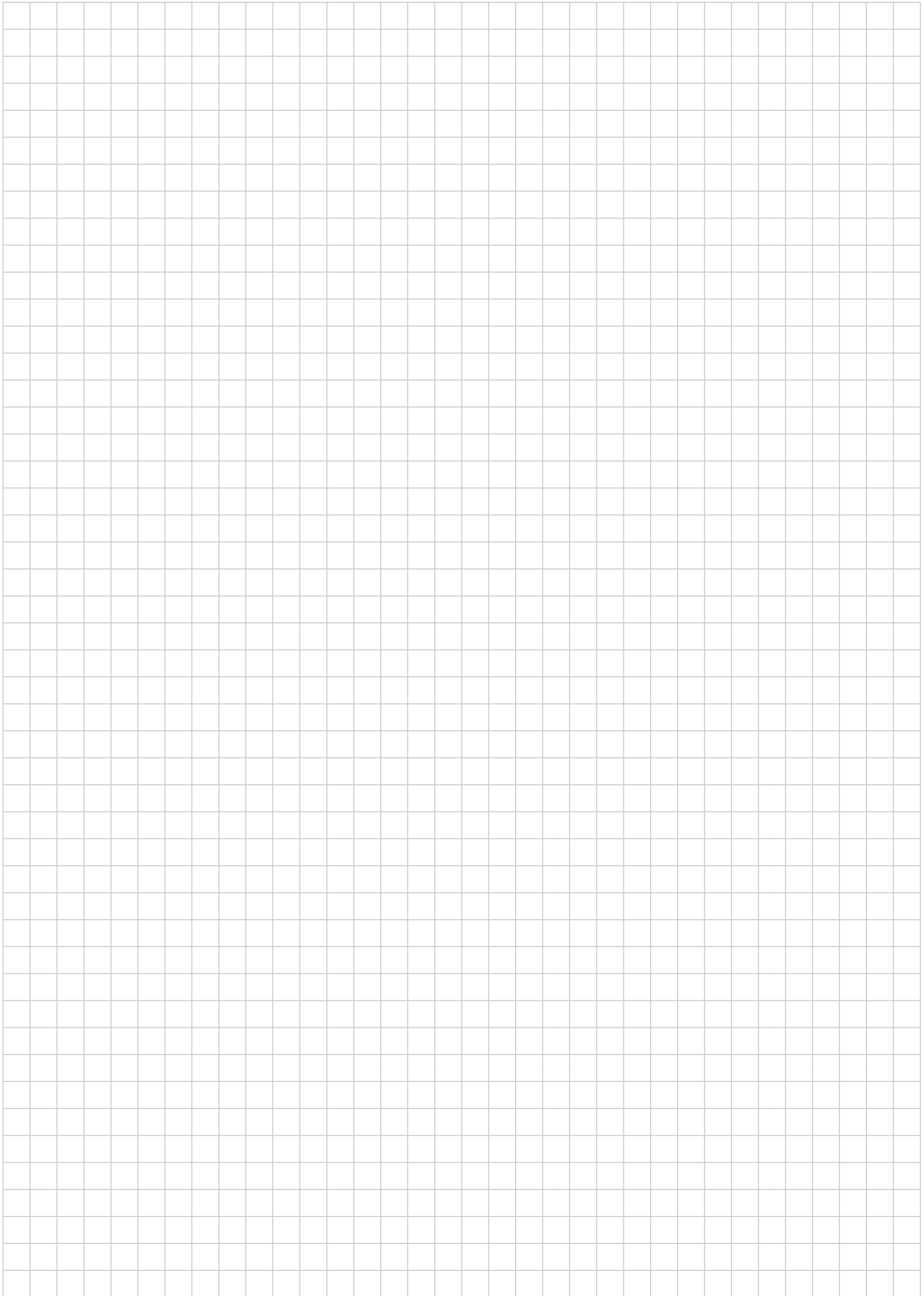


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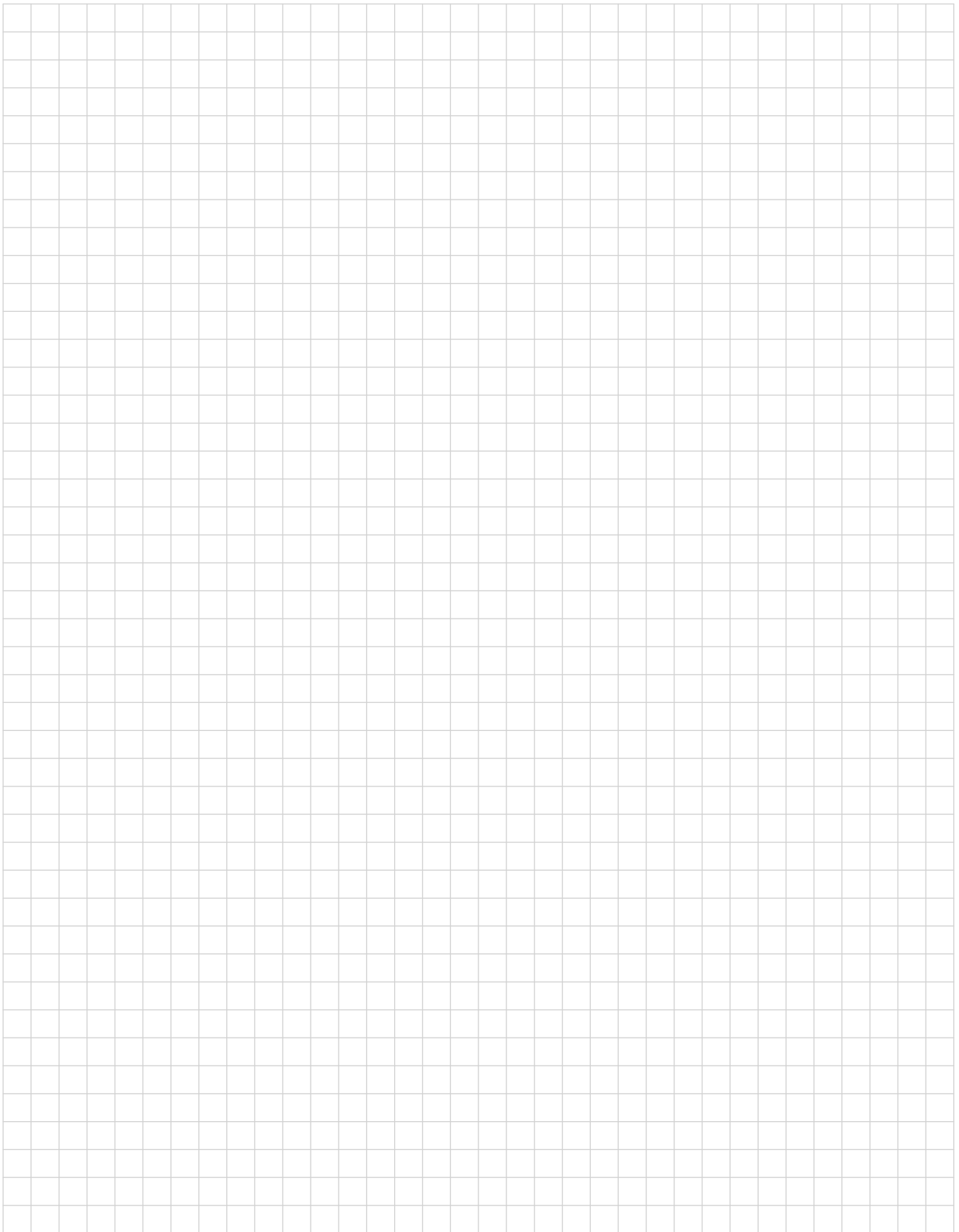
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