



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2015

Mathematics

Paper 2

Ordinary Level

Monday 8 June Morning 9:30 – 12:00

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	
Total	

Grade

Instructions

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

Section A	Concepts and Skills	150 marks	6 questions
Section B	Contexts and Applications	150 marks	3 questions

Answer all nine 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.

You may lose marks if the appropriate units of measurement are not included, where relevant.

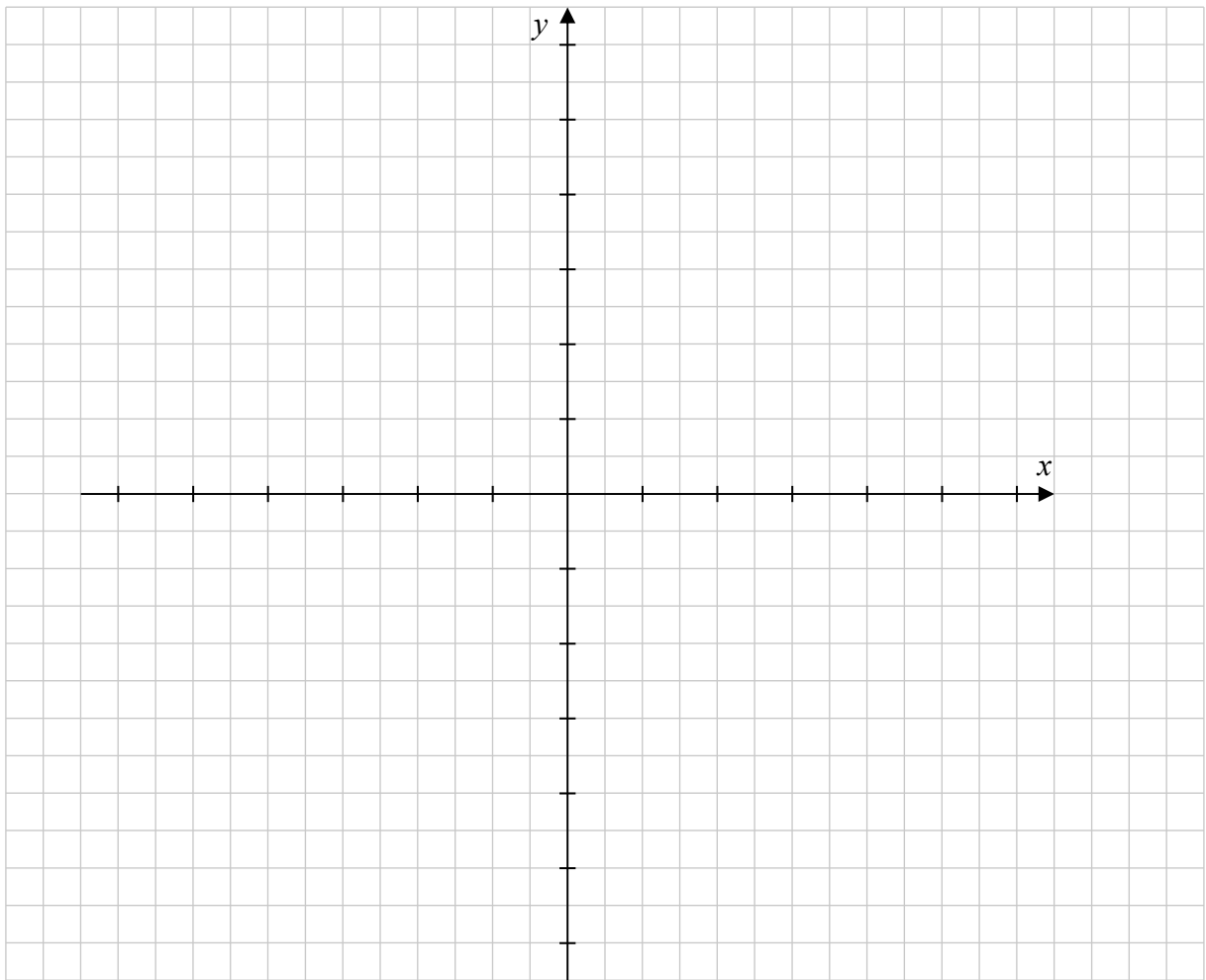
You may lose marks if your answers are not given in simplest form, where relevant.

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

Question 3

(25 marks)

- (a) Draw the circle $c: x^2 + y^2 = 25$. Show your scale on both axes.



- (b) Verify, using algebra, that $A(-4, 3)$ is on c .



- (c) Find the equation of the circle with centre $(-4, 3)$ that passes through the point $(3, 4)$.

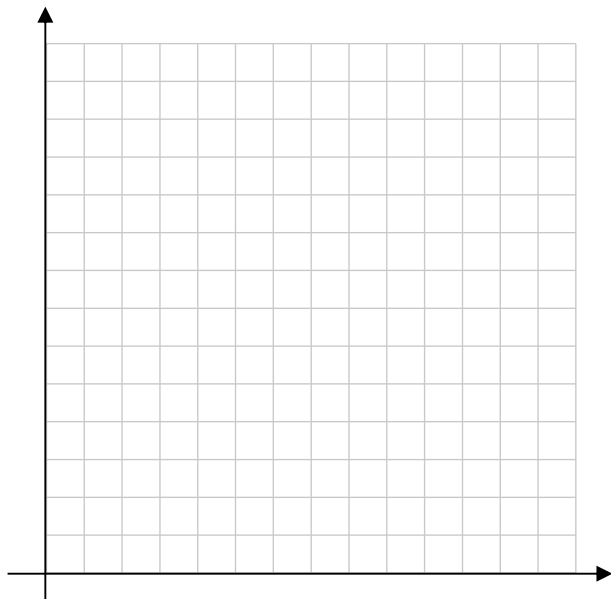


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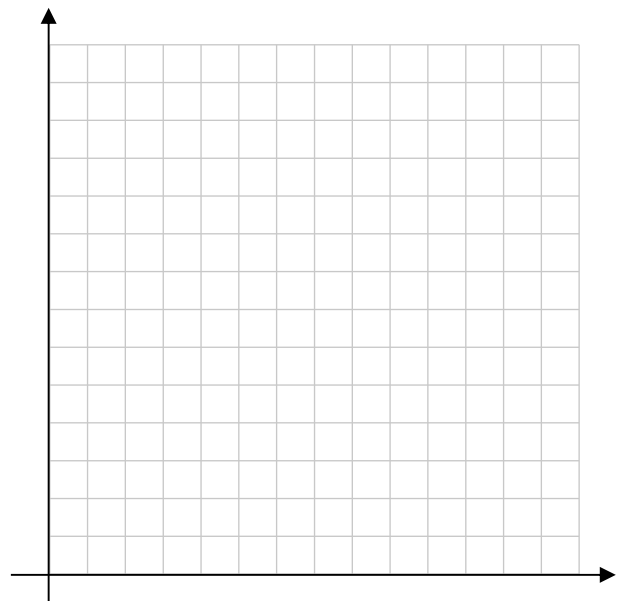
Question 6

(25 marks)

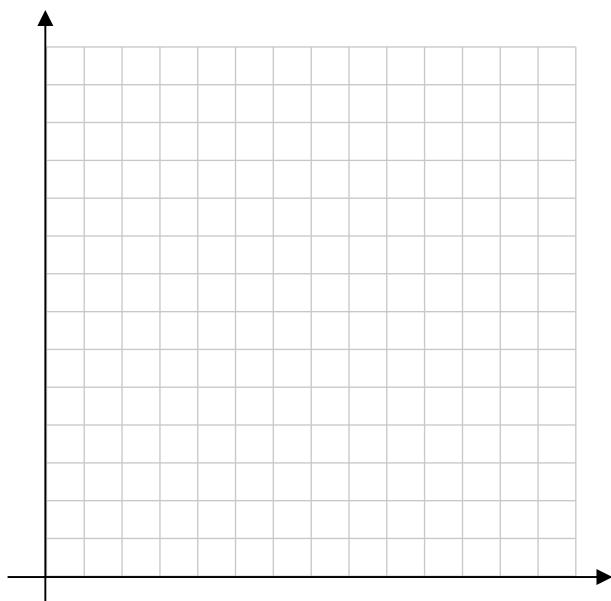
- (a) Mark ten or more points on each of the scatter graphs below to show an example of the type of correlation named under each graph.



(i) Strong positive correlation



(ii) Strong negative correlation

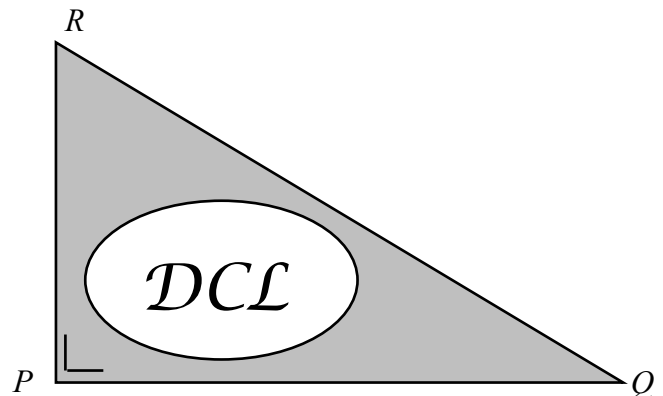
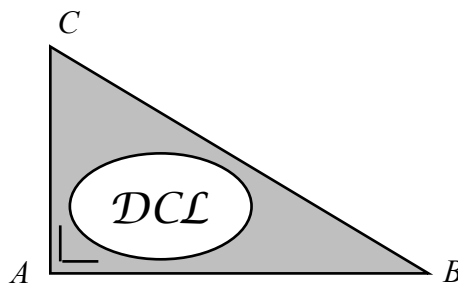


(iii) No correlation

Answer **all three** questions from this section.

Question 7**(35 marks)**

The diagram below shows the right-angled triangle ABC , which is used in the logo for a company called *Deane Construction Limited (DCL)*. The triangle PQR is the image of ABC under an enlargement.

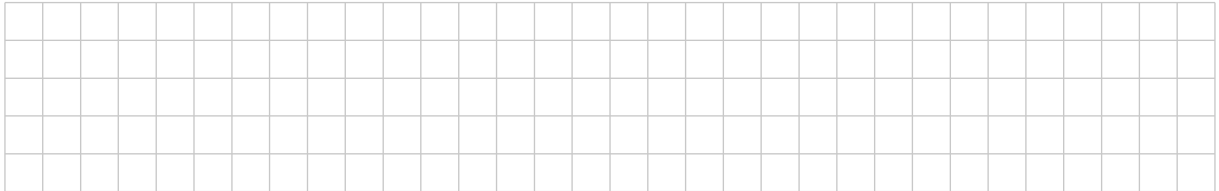


(a) (i) Construct the centre of enlargement and label it O .

(ii) Measure, in centimetres, $|OB|$ and $|OQ|$.

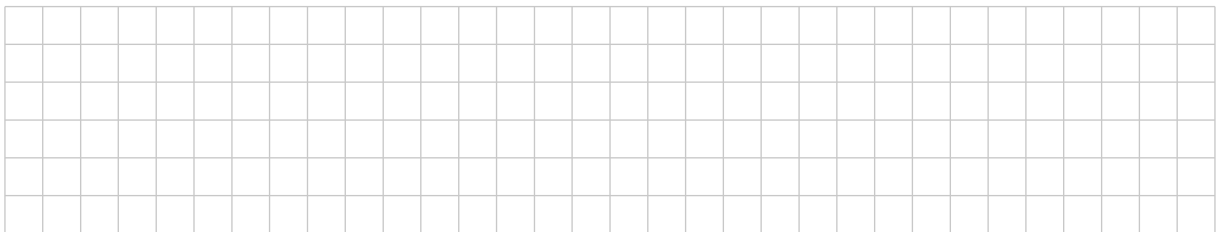
$|OB| =$ _____ $|OQ| =$ _____

(iii) Use your measurements to find the scale factor of the enlargement, correct to one decimal place.



(b) The area of the triangle ABC is 7.5 cm^2 .

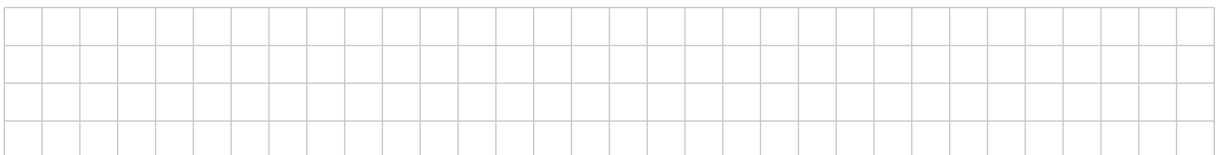
Use the scale factor to find the area of the image triangle PQR under the enlargement.



(c) (i) Given that $|AB| = 5 \text{ cm}$, use the scale factor to find $|PQ|$.



(ii) Given that $|QR| = 8.7 \text{ cm}$, use the scale factor to find $|BC|$.



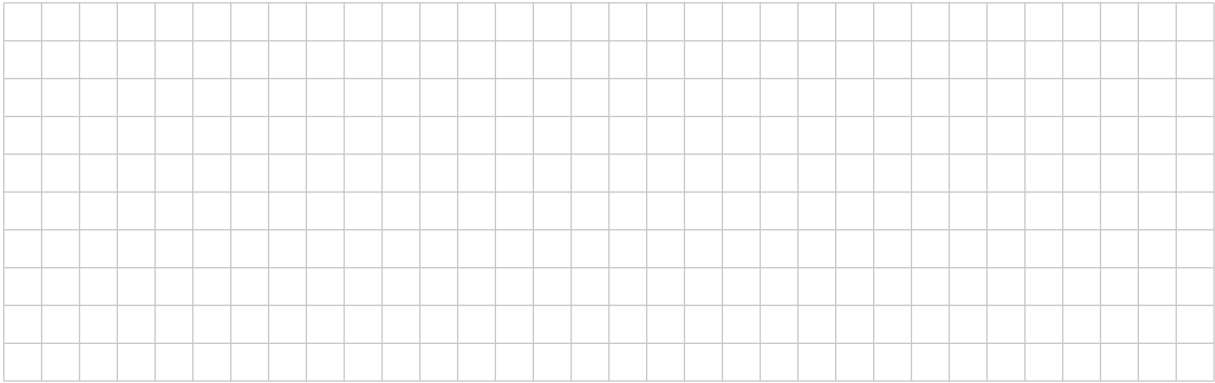
(iii) Hence, show that $|\angle ABC| = |\angle PQR|$.



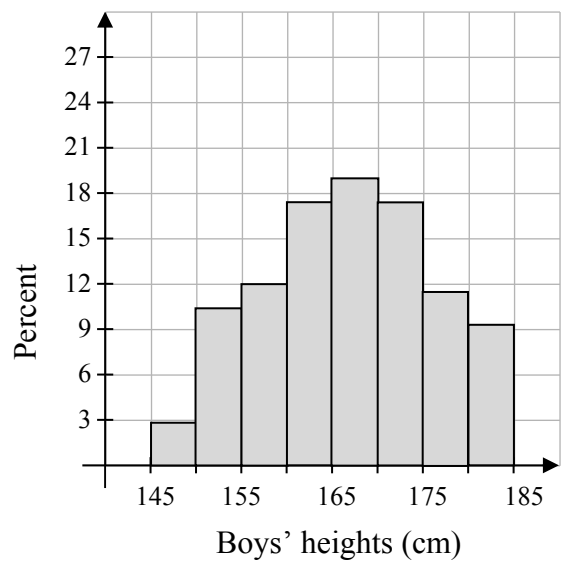
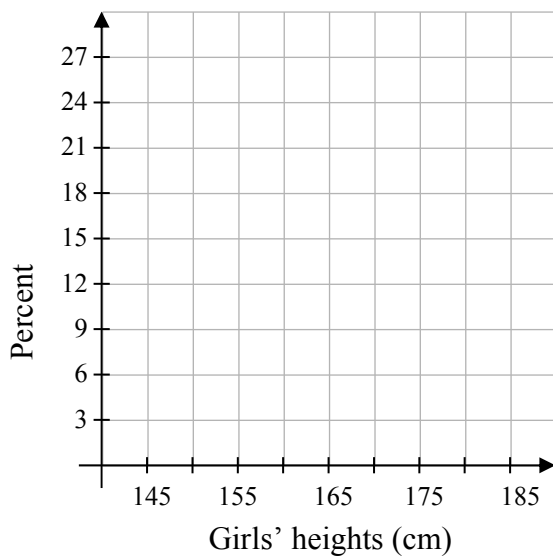
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- (c) (i) Use the data in Table 1 to complete Table 2 by finding the percentage of girls in each of the height categories.

Table 2 (Girls, %)								
Height (cm)	145-150	150-155	155-160	160-165	165-170	170-175	175-180	180-185
Percentage of girls				22.4	25			



- (ii) Use the data in Table 2 to draw a histogram showing the percentage of girls in each height category.



- (iii) A histogram showing the percentage of boys in each height category is given above. John examines both histograms and comments that “There are roughly twice as many boys as girls in the 175 to 180 cm category”. Do the histograms support his claim? Explain your answer.

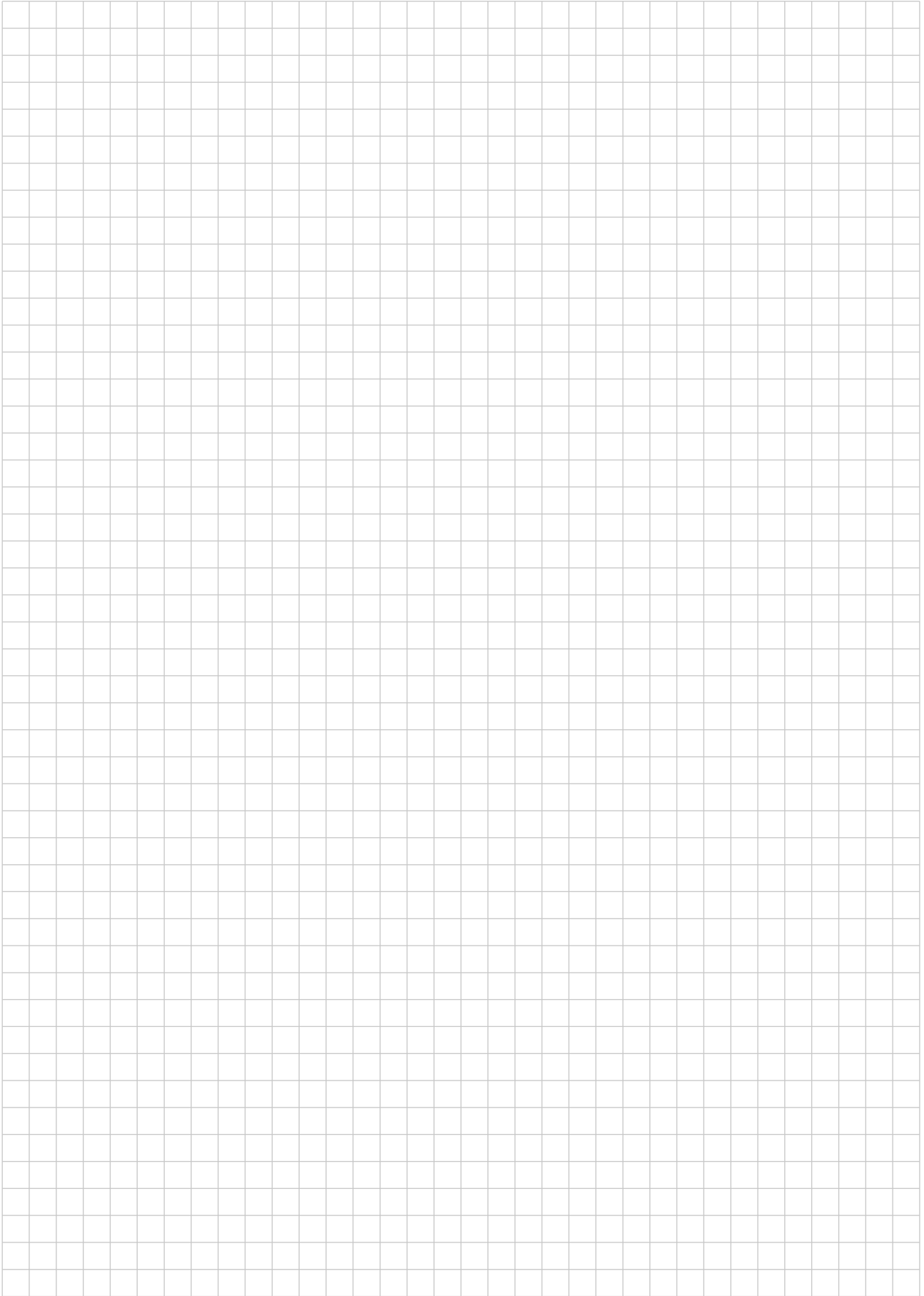
Answer:

Reason:

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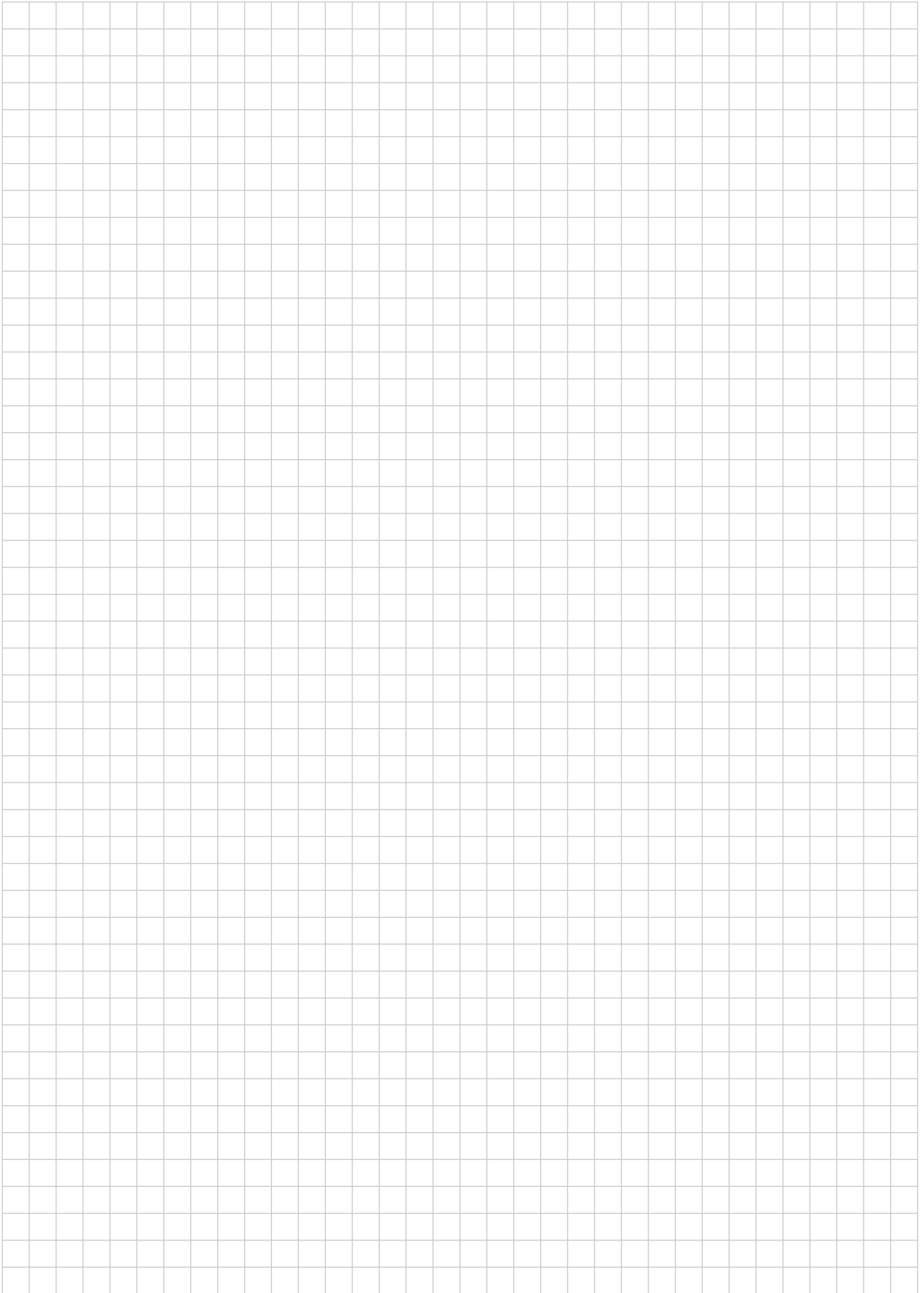
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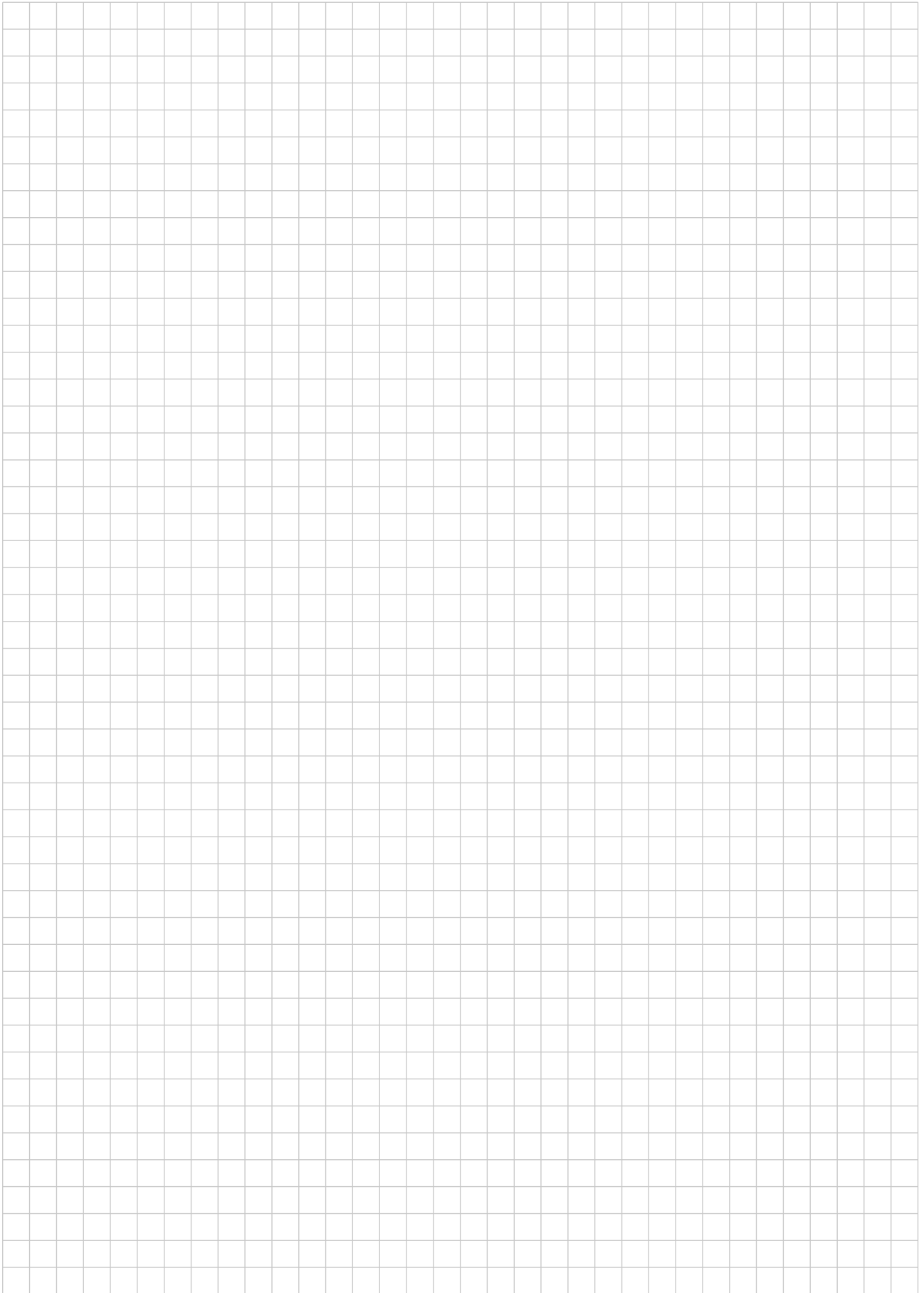


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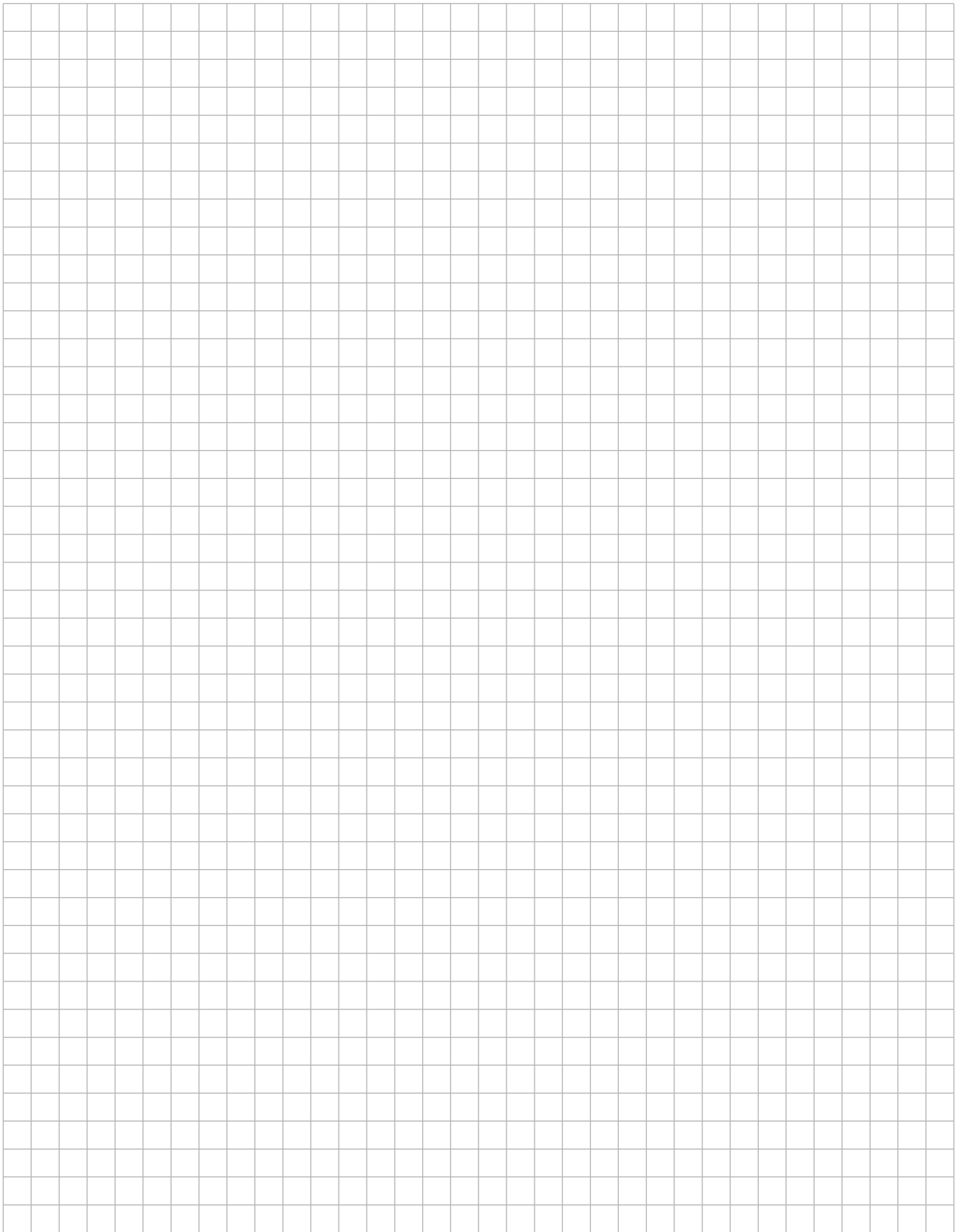
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