



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination, 2013

# Mathematics (Project Maths – Phase 1)

Paper 2

Ordinary Level

Monday 10 June – Morning 9.30 to 11.30  
300 marks

Examination number
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Centre stamp
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Running total	
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For examiner			
Question	Mark	Question	Mark
1		11	
2		12	
3		13	
4			
5			
6			
7			
8			
9			
10		Total	

Grade
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## Instructions

There are 13 questions on this examination paper. Answer **all** questions.

Questions do not necessarily carry equal marks. To help you manage your time during this examination, a maximum time for each question is suggested. If you remain within these times, you should have about 10 minutes left to review your work.

Write your answers in the spaces provided in this booklet. 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.

Marks will be lost 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 5**

**(suggested maximum time: 5 minutes)**

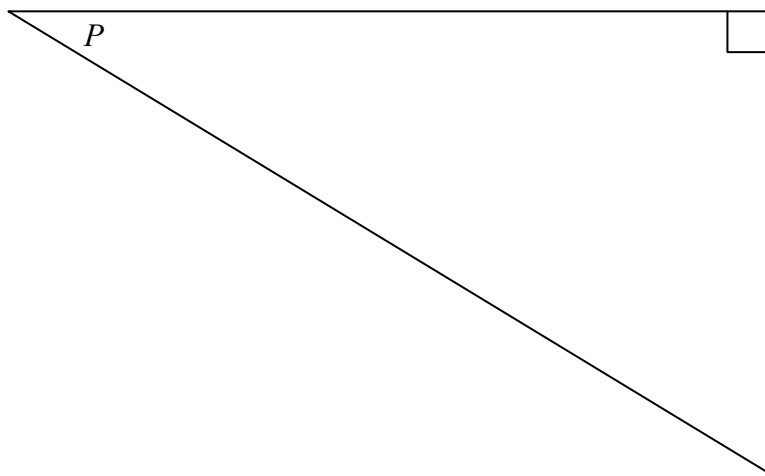
- (a)** Use your calculator to find the following trigonometric ratios.  
Write each answer correct to four decimal places.

$\sin 25^\circ =$  \_\_\_\_\_

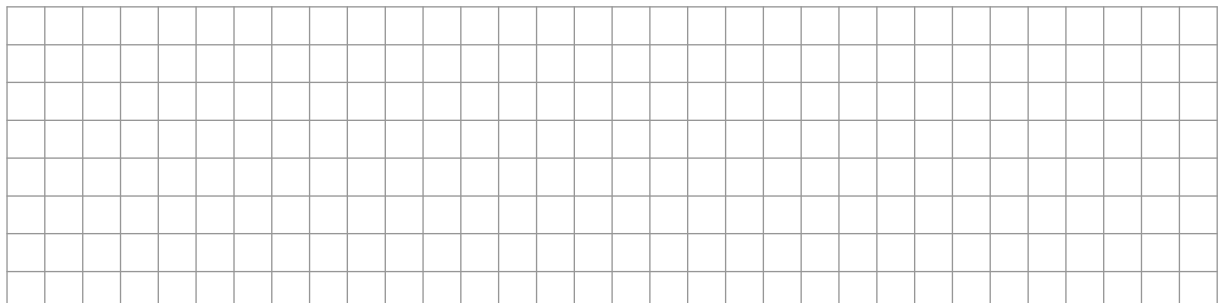
$\cos 39^\circ =$  \_\_\_\_\_

$\tan 40^\circ =$  \_\_\_\_\_

- (b)** The angle  $P$  is shown in the triangle below.



- (i)** On the diagram, clearly label the side opposite the angle  $P$ .
- (ii)** On the diagram, clearly label the side adjacent to the angle  $P$ .
- (iii)** If the length of the opposite side is 9 and the length of the adjacent side is 12, find the length of the hypotenuse.



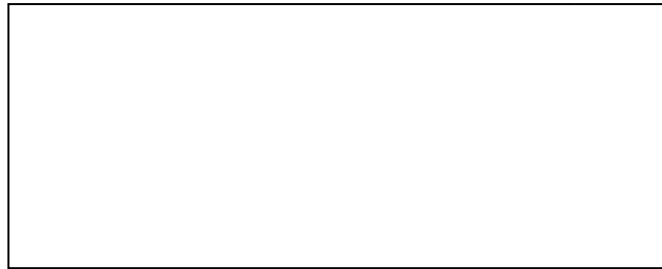




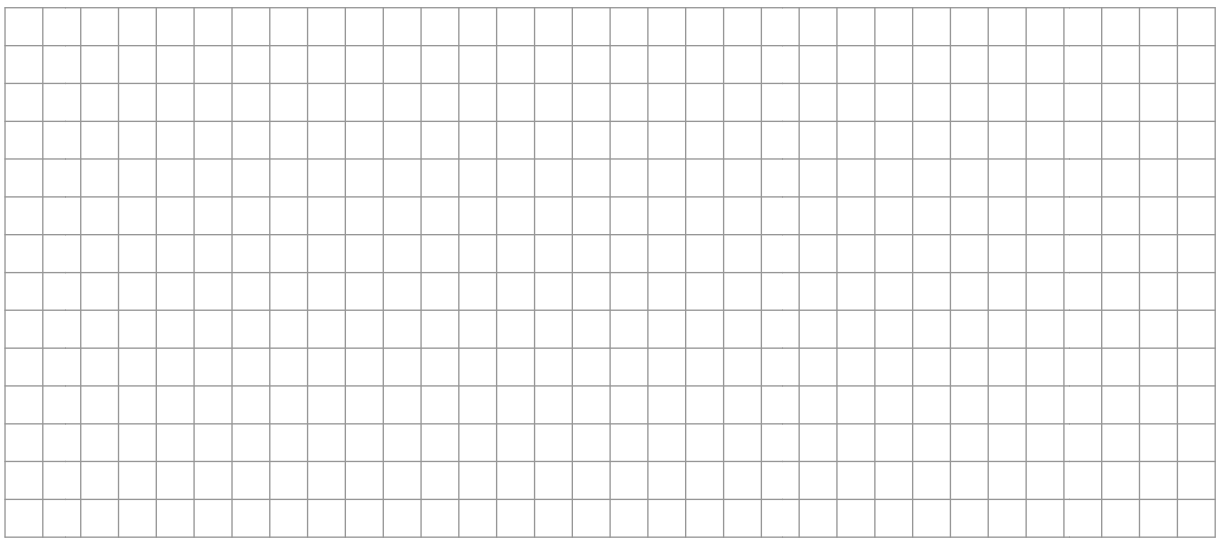
**Question 7**

**(suggested maximum time: 10 minutes)**

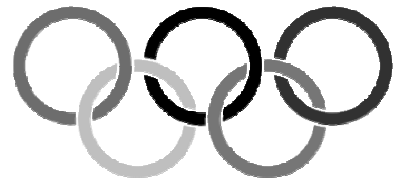
- (a) The perimeter of a rectangle is 28 cm. The length of the rectangle is 9 cm. Find the width of the rectangle.



9 cm



- (b) The symbol for the Olympic Games is five intersecting rings. The rings represent the five continents which compete in the games. The radius of each ring is 4 m. Find the total circumference of the five rings. Use  $\pi = 3.142$ .





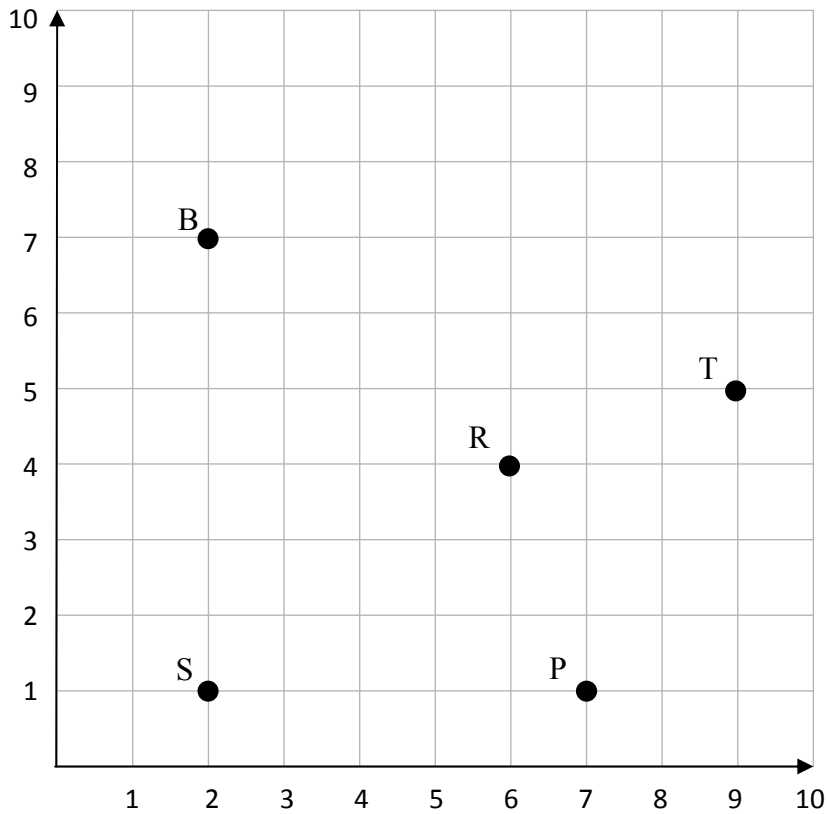




**Question 11**

**(suggested maximum time: 10 minutes)**

An archaeologist has discovered various items at a site. The site is laid out in a grid and the position of each item is shown on the grid. The items found are a brooch (B), a plate (P), a ring (R), a statue (S) and a tile (T).



**(a)** Write down the co-ordinates of the position of each item.

B = ( 2 , 7 )

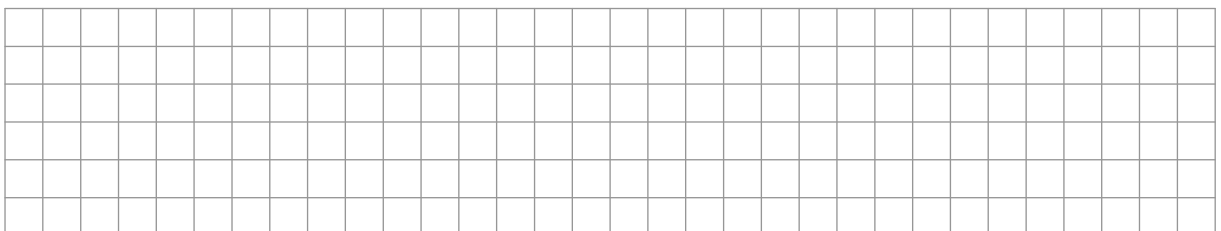
P = (     ,     )

R = (     ,     )

S = (     ,     )

T = (     ,     )

**(b)** Each square of the grid represents 1 m<sup>2</sup>.  
Find the total area of the grid.





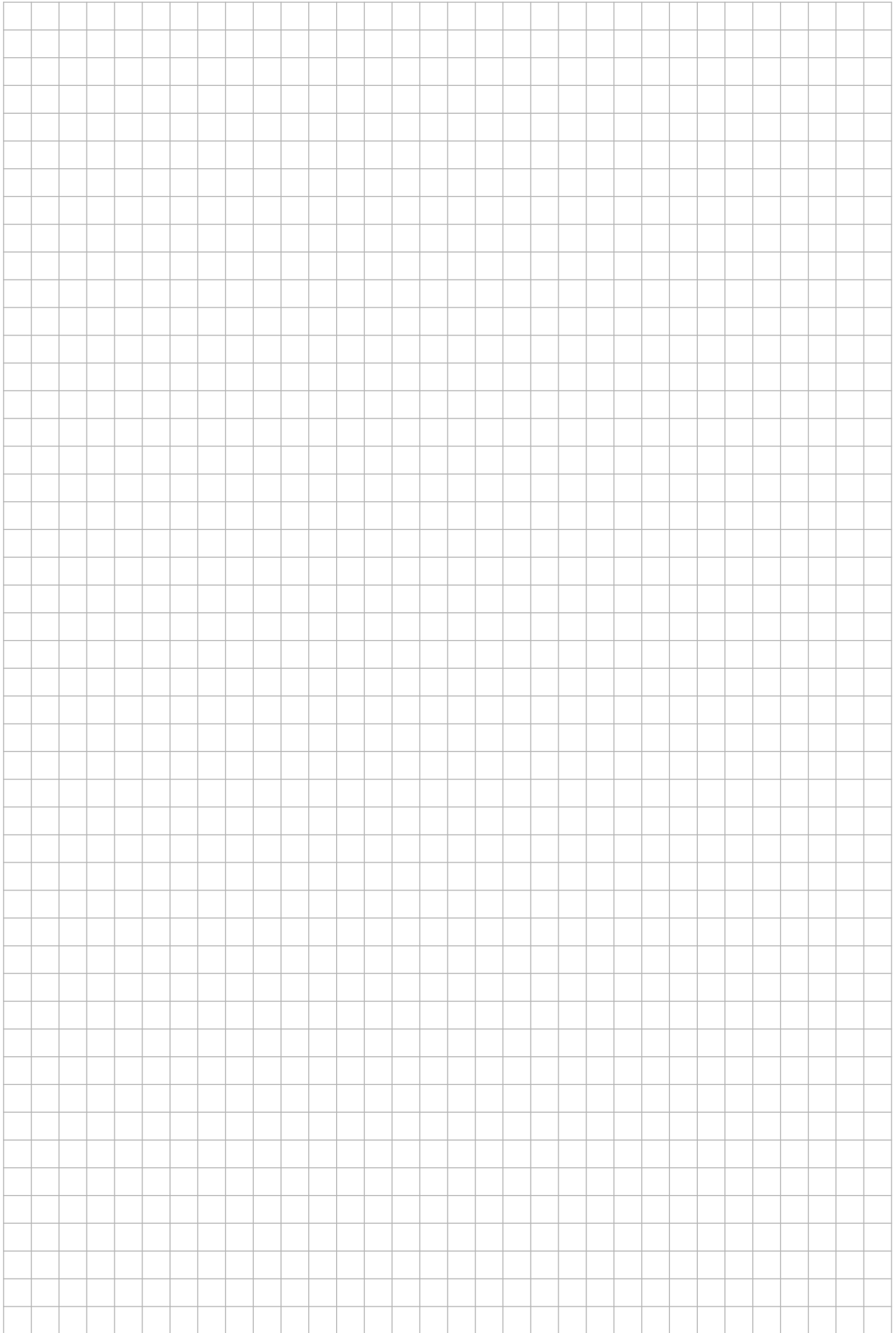




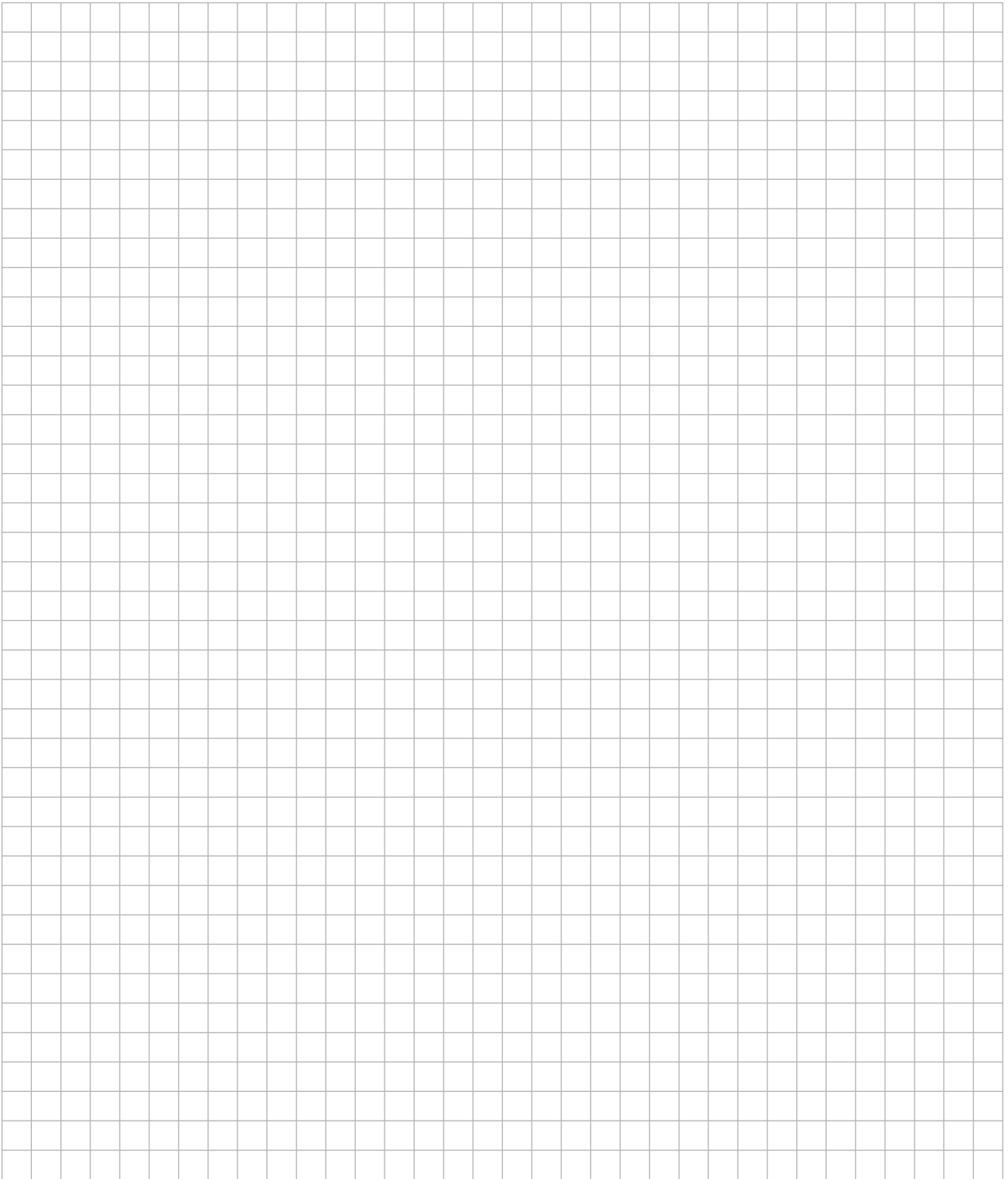




You may use this page for extra work.



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