



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Leaving Certificate Examination 2011

# Mathematics (Project Maths – Phase 2)

Paper 1

Foundation Level

Friday 10 June Afternoon 2:00 – 4:30

300 marks

Examination number
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Centre stamp
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Running total	
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For examiner	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
Total	

Grade
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## Instructions

There are **three** sections in this examination paper:

Section A	Concepts and Skills	125 marks	5 questions
Section B	Contexts and Applications	125 marks	2 questions
Section C	Functions and Graphs (old syllabus)	50 marks	1 question

Answer questions as follows:

In Section A, answer **all five** questions

In Section B, answer **both** Question 6 **and** Question 7

In Section C, answer Question 8.

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 booklet of *Formulae and Tables*. 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:



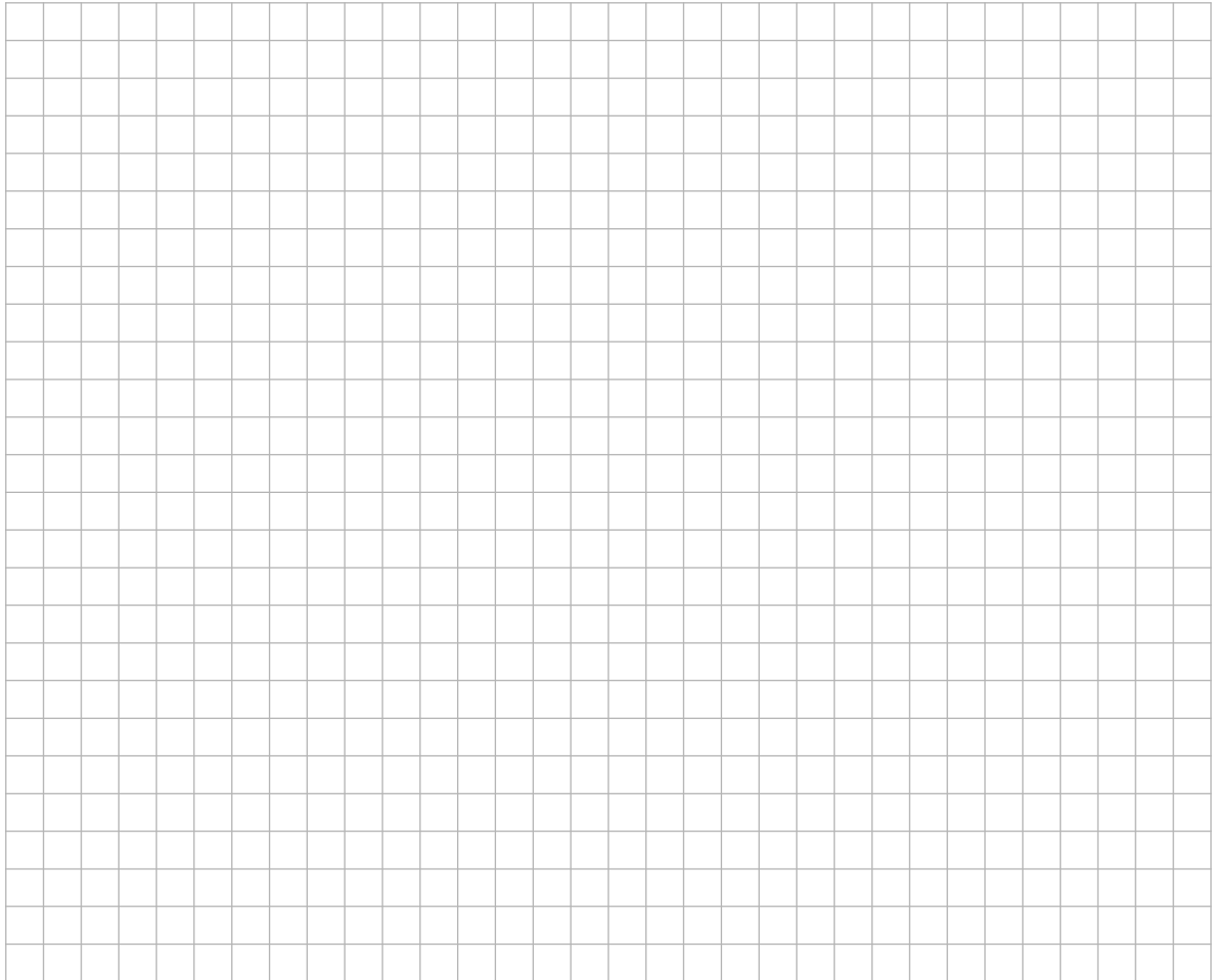
**Question 2**

**(25 marks)**

- (a) Write 8% as a decimal.

Answer: \_\_\_\_\_

- (b) A company borrows €15 000 for five years at an interest rate of 8% per annum (APR). If the company makes no repayments, how much will it owe at the end of the five years.



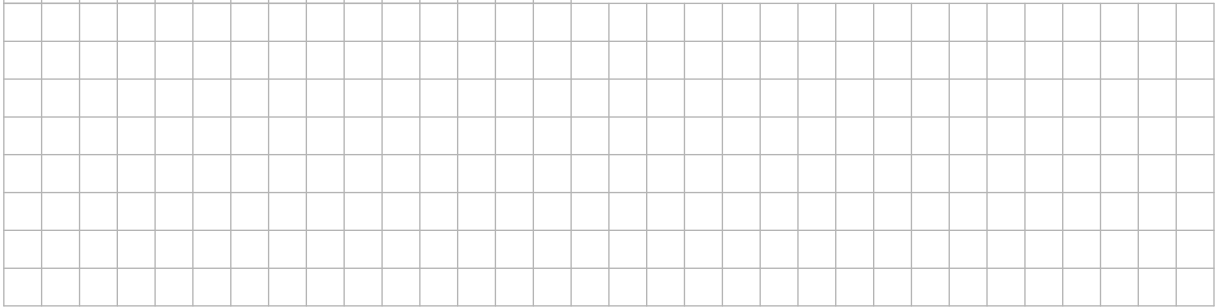
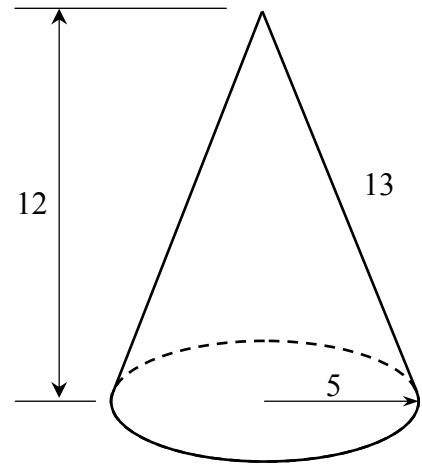
**Question 3**

**(25 marks)**

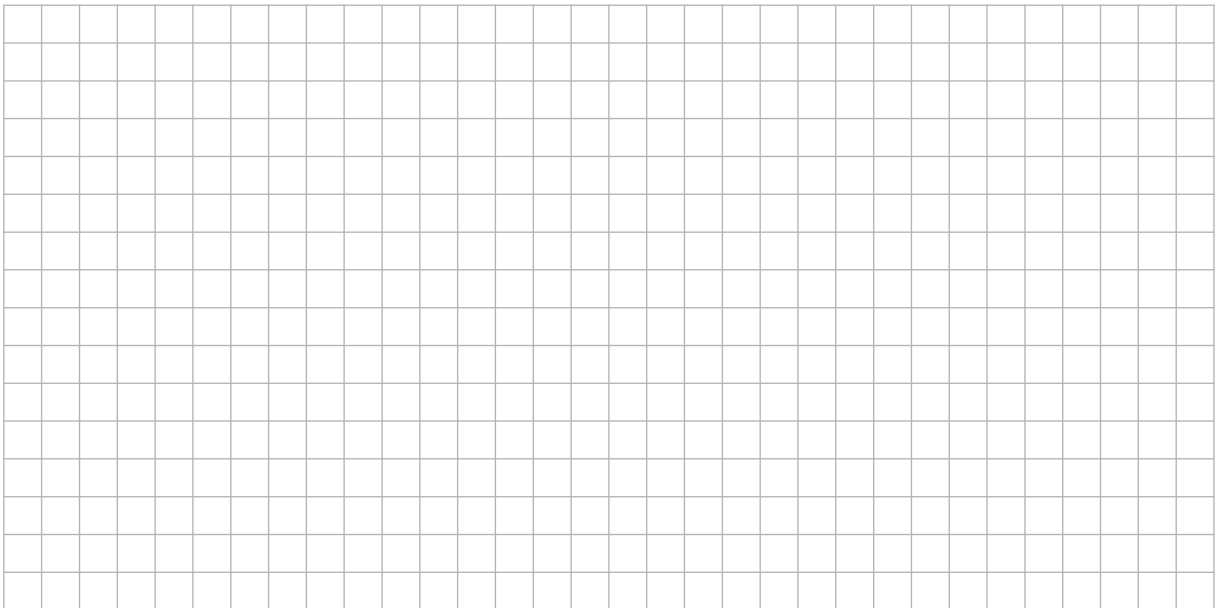
The diagram shows a right cone with measurements as follows:

- Radius of base: 5 cm
- Vertical height: 12 cm
- Slant height: 13 cm.

**(a)** Find the volume of the cone, in  $\text{cm}^3$ , correct to two decimal places.



**(b)** Find the total surface area of the cone, in  $\text{cm}^2$ , correct to two decimal places.



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**Question 4**

**(25 marks)**

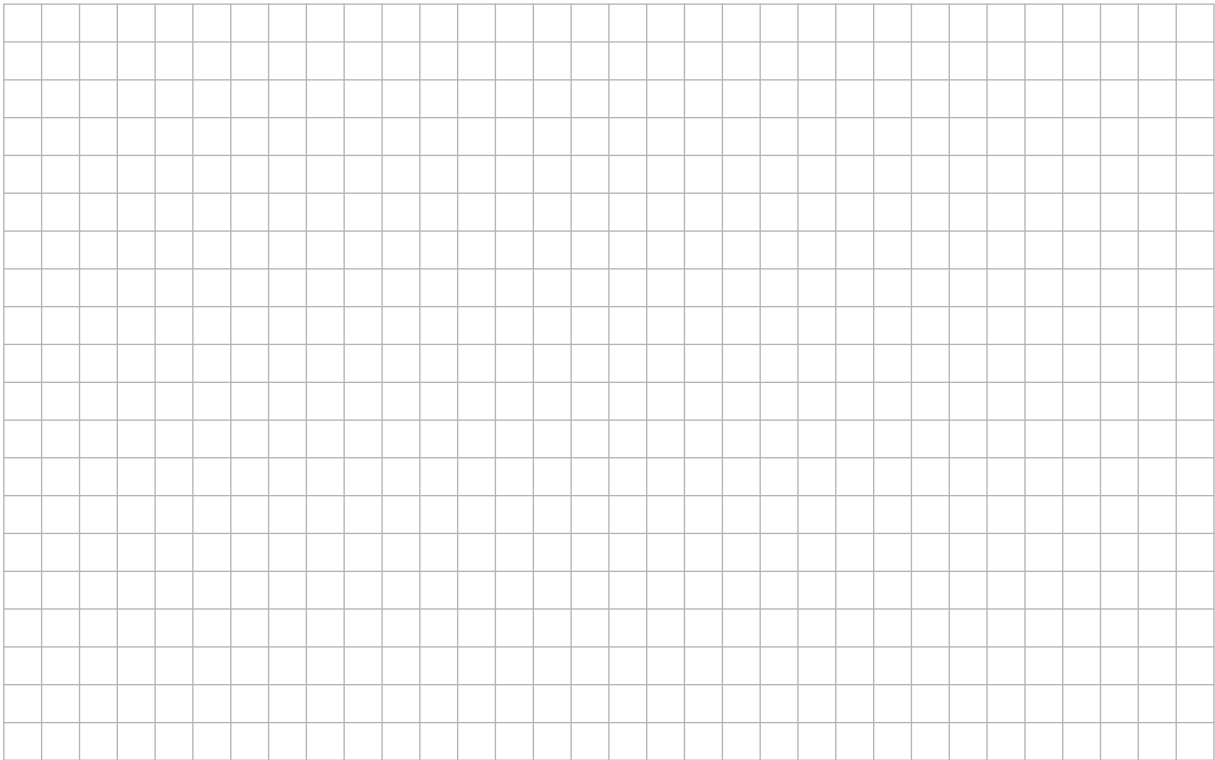
- (a) Evaluate  $\frac{4x-8}{3x+2}$  when  $x = -2$ .

- (b) Let  $f(x) = 4x - 8$  and let  $g(x) = 3x + 2$ .  
Find the value of  $x$  for which  $f(x) = g(x)$ .

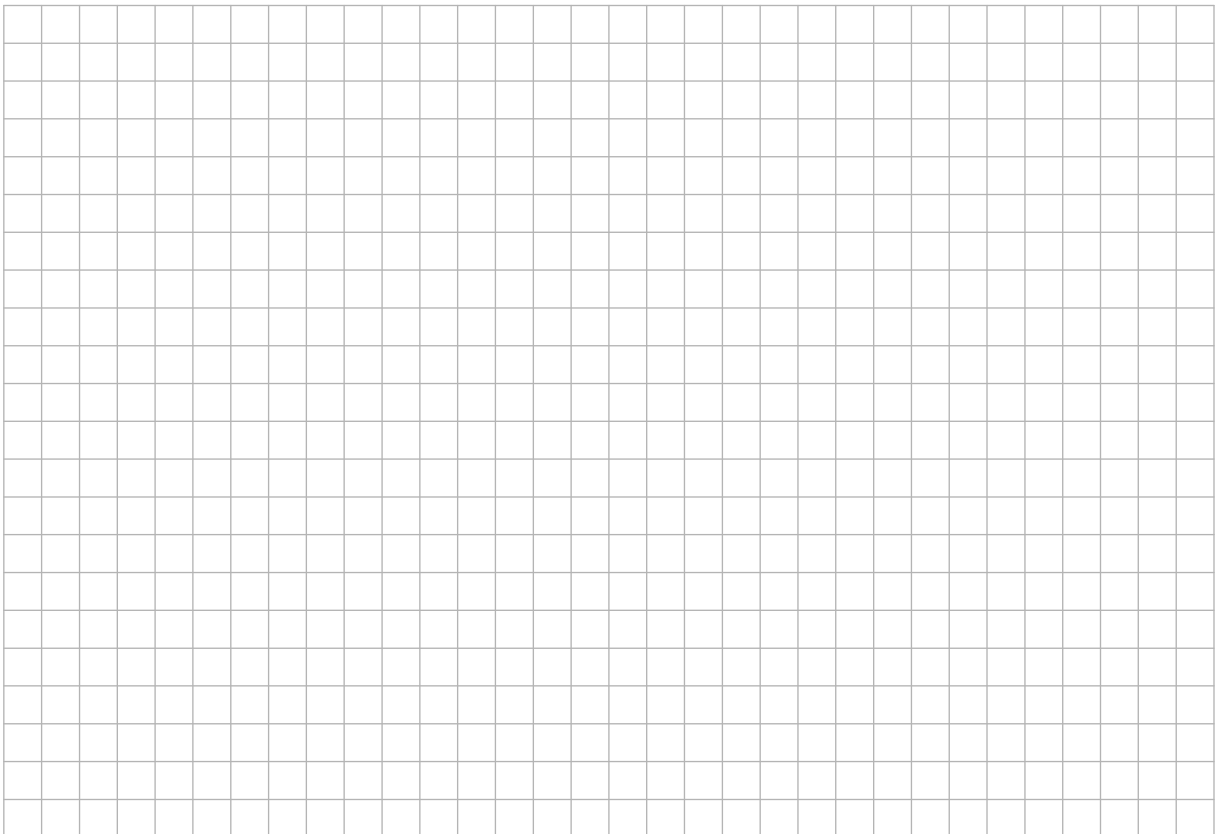
**Question 5**

**(25 marks)**

**(a)** Solve the equation  $x^2 - 12x + 11 = 0$ .



**(b)** Solve the equation  $2y^2 - 7y - 5 = 0$ , giving your answers correct to two decimal places.



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**Question 7**

**(50 marks)**

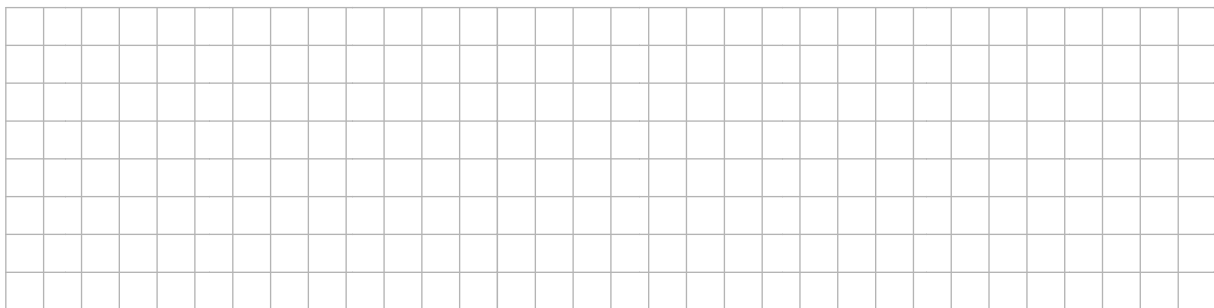
A company makes and sells clocks. The more they charge for the clocks, the fewer they will sell. In particular, they have noticed that:

- If they charge €15 per clock, they will sell 300 clocks per month.
- For every extra euro charged, the number sold per month falls by twenty.

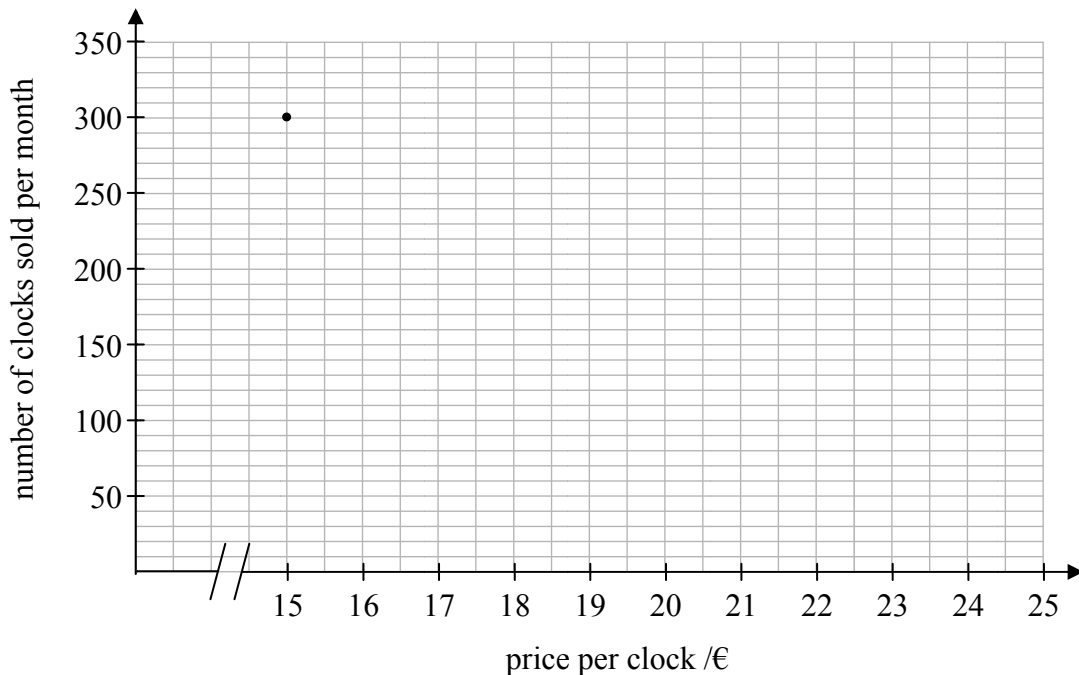


**(a)** Complete the table below showing the number of clocks sold at the given prices.

Price per clock /€	15	16	17	18	19	20	25
Number sold per month	300						



**(b)** Draw a graph to represent the number of clocks sold per month for prices from €15 to €25.



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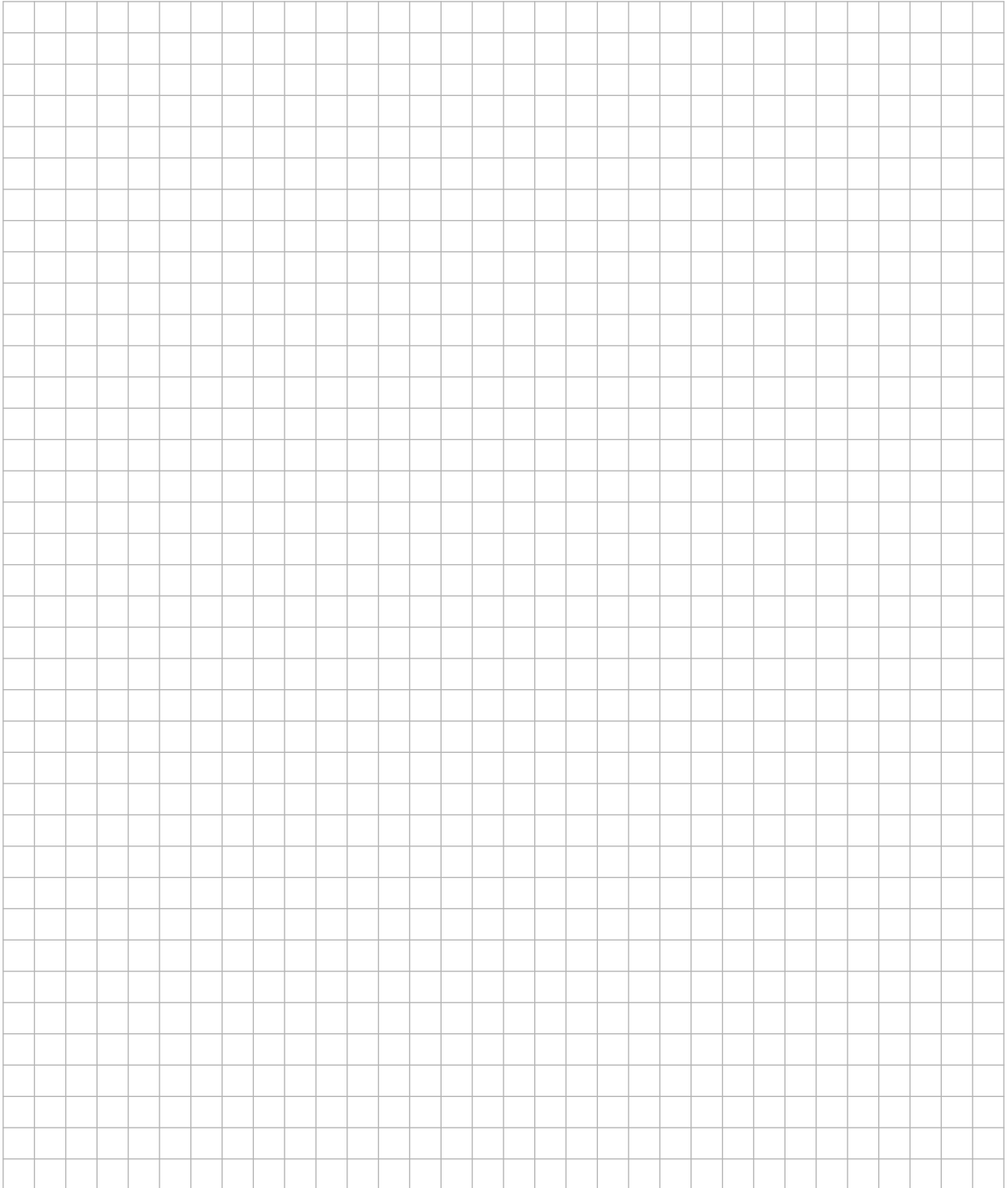


Answer **Question 8** from this section.

**Question 8****(50 marks)**

(a) Draw the graph of the function

$$f : x \rightarrow 2x^2 - x - 5, \text{ for } -3 \leq x \leq 3, x \in \mathbb{R}.$$



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**(b)** Use your graph to estimate the following:

**(i)** the value of  $f(2.5)$

Answer: \_\_\_\_\_

**(ii)** the minimum value of  $f(x)$

Answer: \_\_\_\_\_

**(iii)** the values of  $x$  for which  $f(x) = 7$

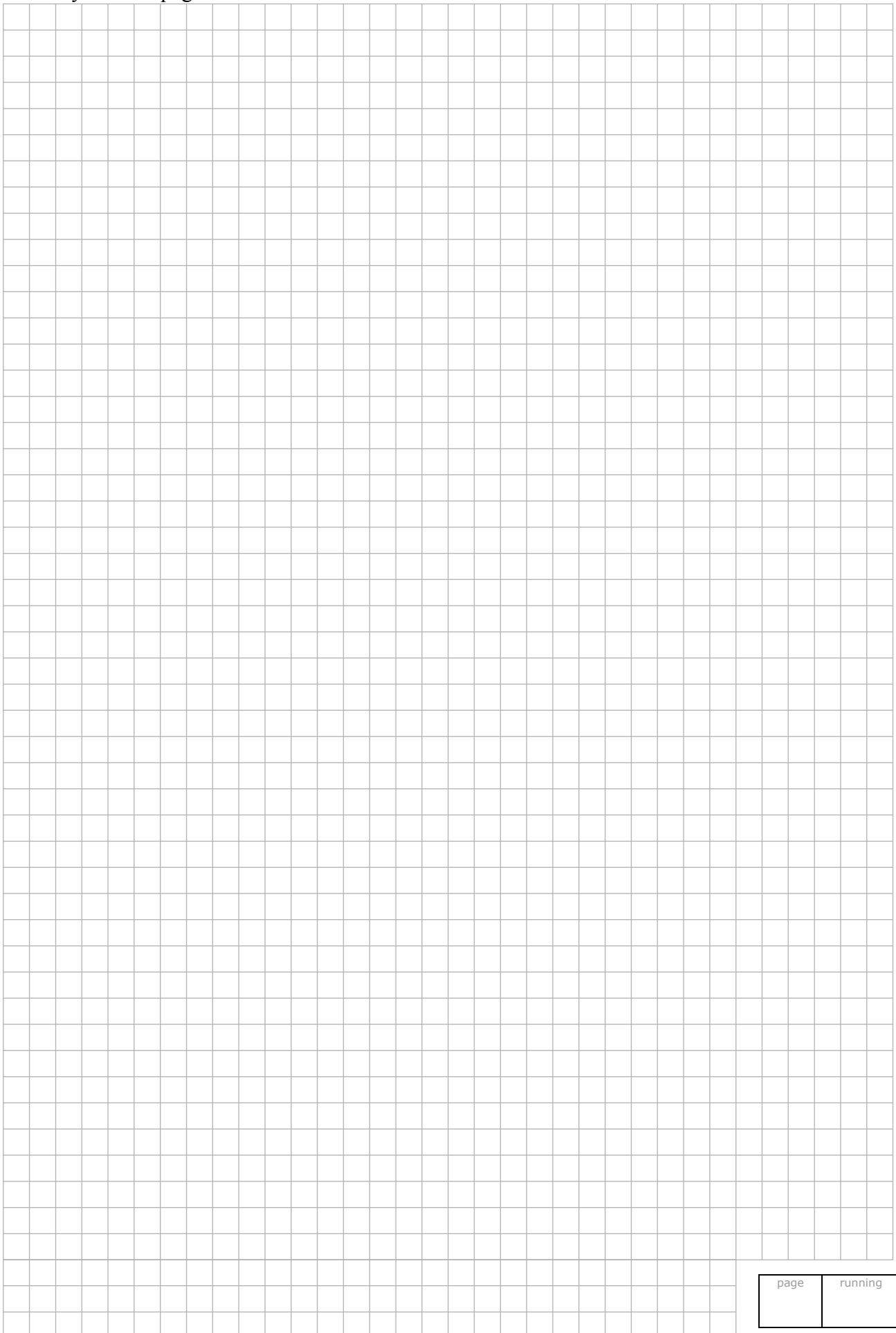
Answer: \_\_\_\_\_

**(iv)** the range of values of  $x$  for which  $f(x)$  is increasing

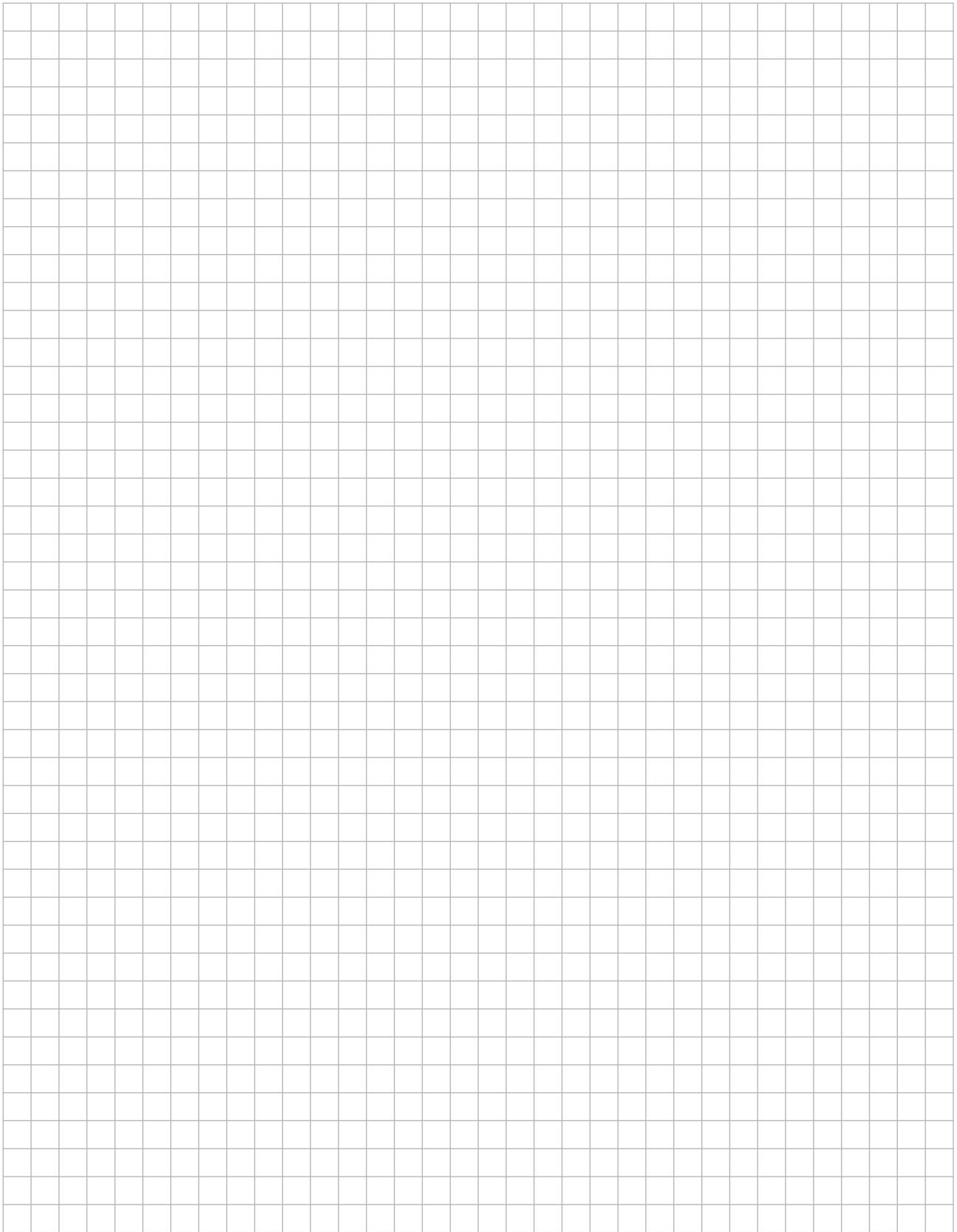
Answer: \_\_\_\_\_



You may use this page for extra work.



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