



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination, 2012

Mathematics (Project Maths – Phase 1)

Paper 2

Foundation Level

Monday 11 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	
Total	

Grade

Instructions

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

Section A	Concepts and Skills	100 marks	4 questions
Section B	Contexts and Applications	100 marks	2 questions
Section C	Area and Volume (old syllabus)	100 marks	2 questions

Answer **all eight** questions, as follows:

In Section A, answer

Questions 1 to 3 and

either Question 4A **or** Question 4B.

In Section B, answer Questions 5 and 6.

In Section C, answer Questions 7 and 8.

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

A sheet of formulae will also be given to you by the superintendent.

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 4

(25 marks)

Answer **either** 4A **or** 4B.

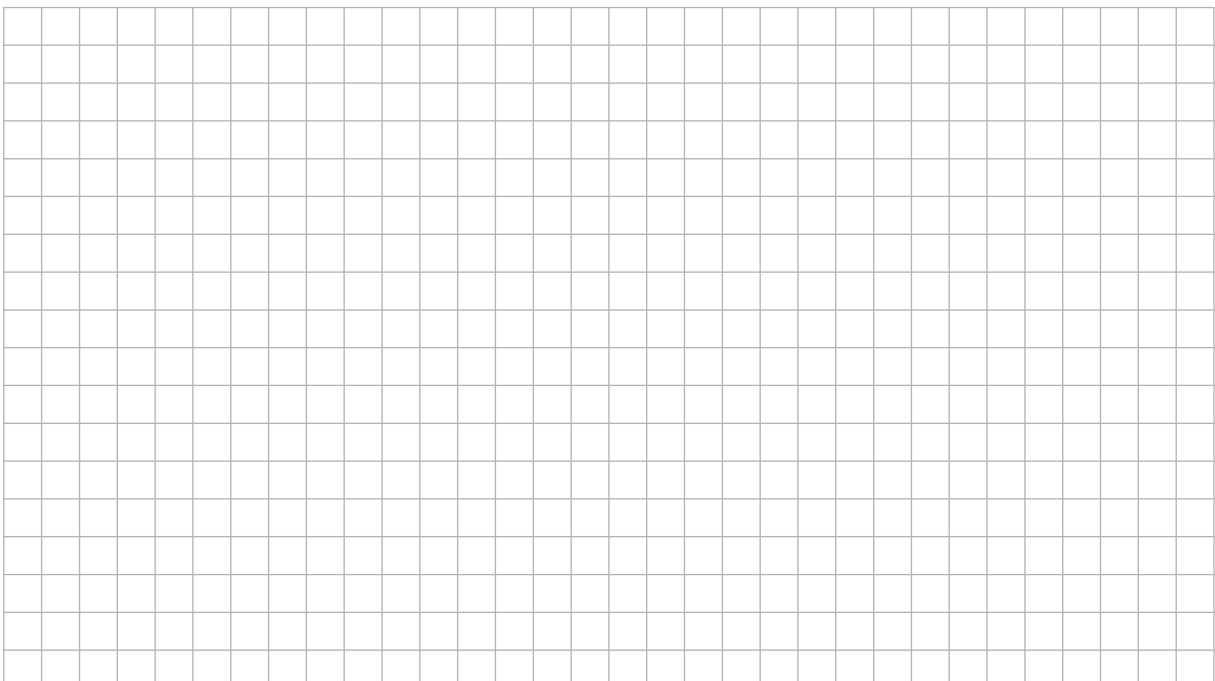
Question 4A

- (a) Construct a parallelogram $PQRS$ in which $|PQ| = 7$ cm, $|QR| = 5$ cm and $|\angle PQR| = 120^\circ$.
Show all the construction lines clearly.

- (b) Use your protractor to measure the angle RSP .

Answer: _____

- (c) Explain how you could use the measurement in part (b) to check the accuracy of your construction.



Section B	Contexts and Applications	100 marks
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Answer Question 5 and Question 6 from this section.

Question 5 **(50 marks)**

A researcher is investigating the number of hours that Leaving Certificate students in Ireland spend studying each week. The researcher asks the Principal in her old school to pick some students to be surveyed. Each student was asked how many hours they spent studying, on average, each week. The results are as follows:

9	14	13	17	8
6	8	19	12	9
7	18	13	14	21
6	22	11	6	16
9	7	13	11	22

(a) Complete the following table:

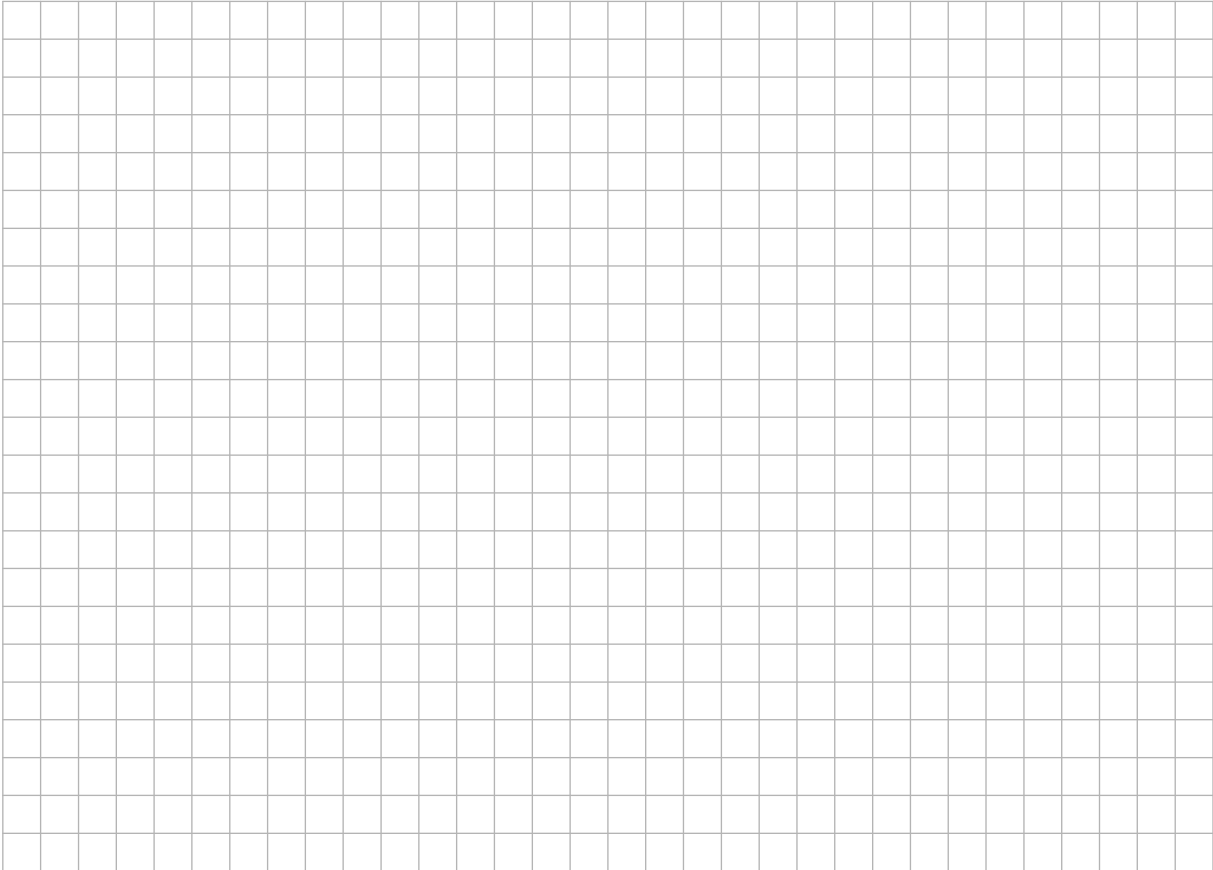
Hours spent studying	5 – 10	10 – 15	15 – 20	20 – 25
Number of students				

Note: “5 – 10” means at least 5 but less than 10, etc.

(b) How many students took part in the research?

Answer: _____

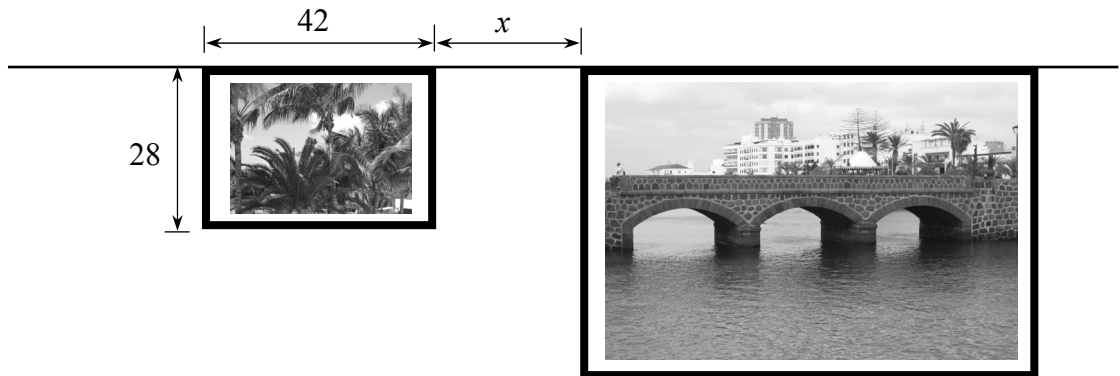
(c) Represent the data using a suitable chart.



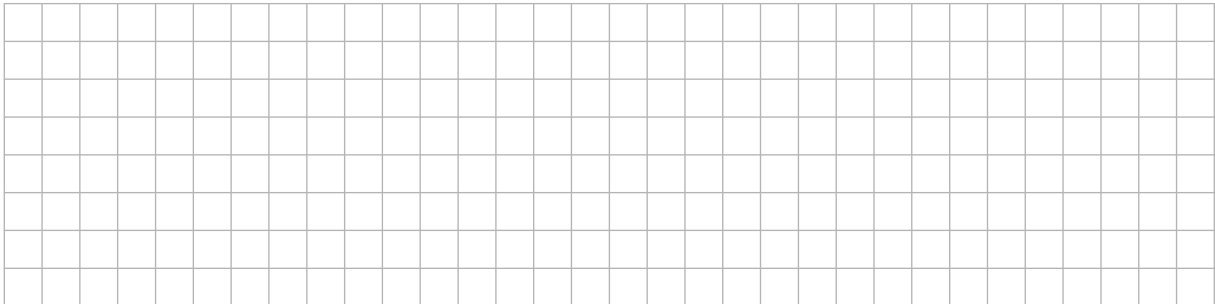
Question 6

(50 marks)

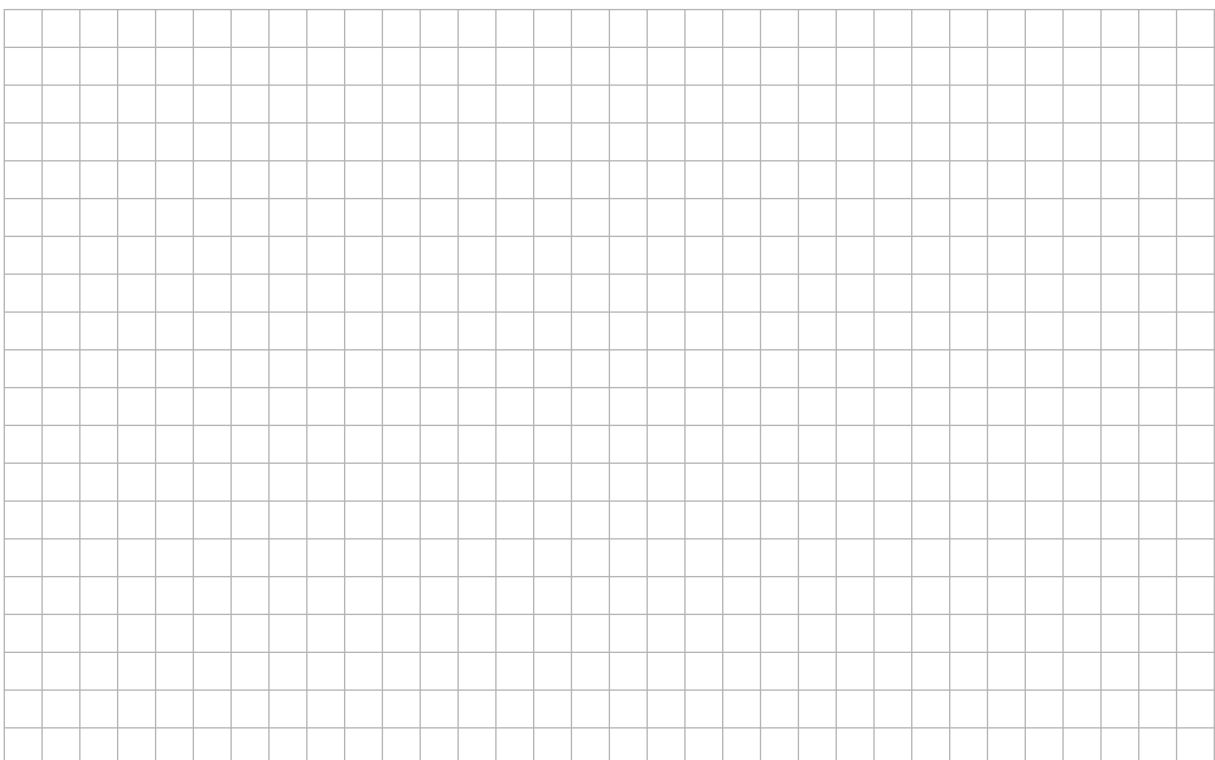
- (a) John hangs two pictures from a horizontal rail.
The smaller picture frame is a rectangle measuring 42 cm by 28 cm. The larger picture frame is an enlargement of the smaller picture frame. The scale factor of the enlargement is 2.



- (i) On the diagram, find the centre of enlargement.
(ii) Find the measurements of the larger picture.



- (iii) The centre of enlargement is 70 cm from the nearest corner of the smaller picture.
Find x , the distance between the two pictures.

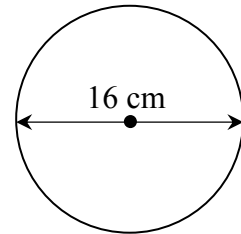
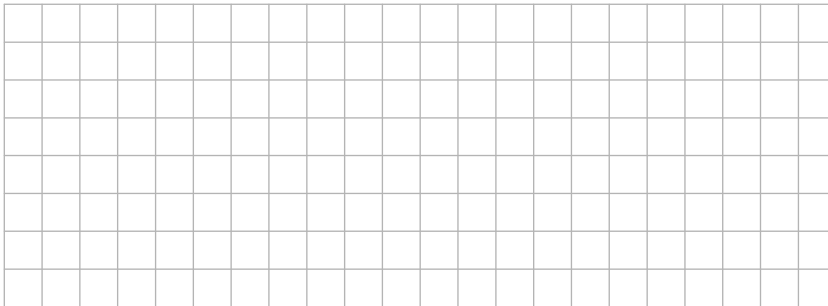


Answer Question 7 and Question 8 from this section.

Question 7

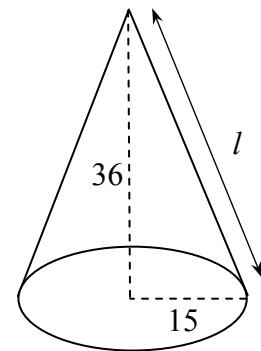
(50 marks)

- (a) A disc has a diameter of 16 cm.
Find the area of the disc, correct to the nearest cm^2 .



- (b) The diagram shows a cone with a base radius of 15 mm and a height of 36 mm.

- (i) Find the volume of the cone, correct to the nearest mm^3 .

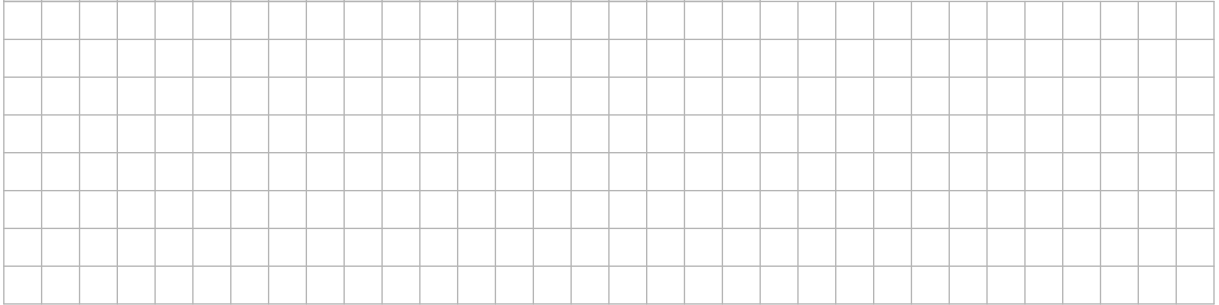
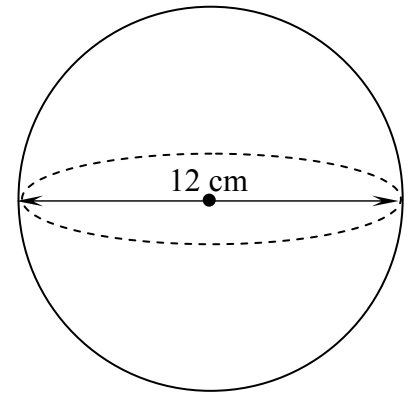


- (ii) Find l , the slant height of the cone.

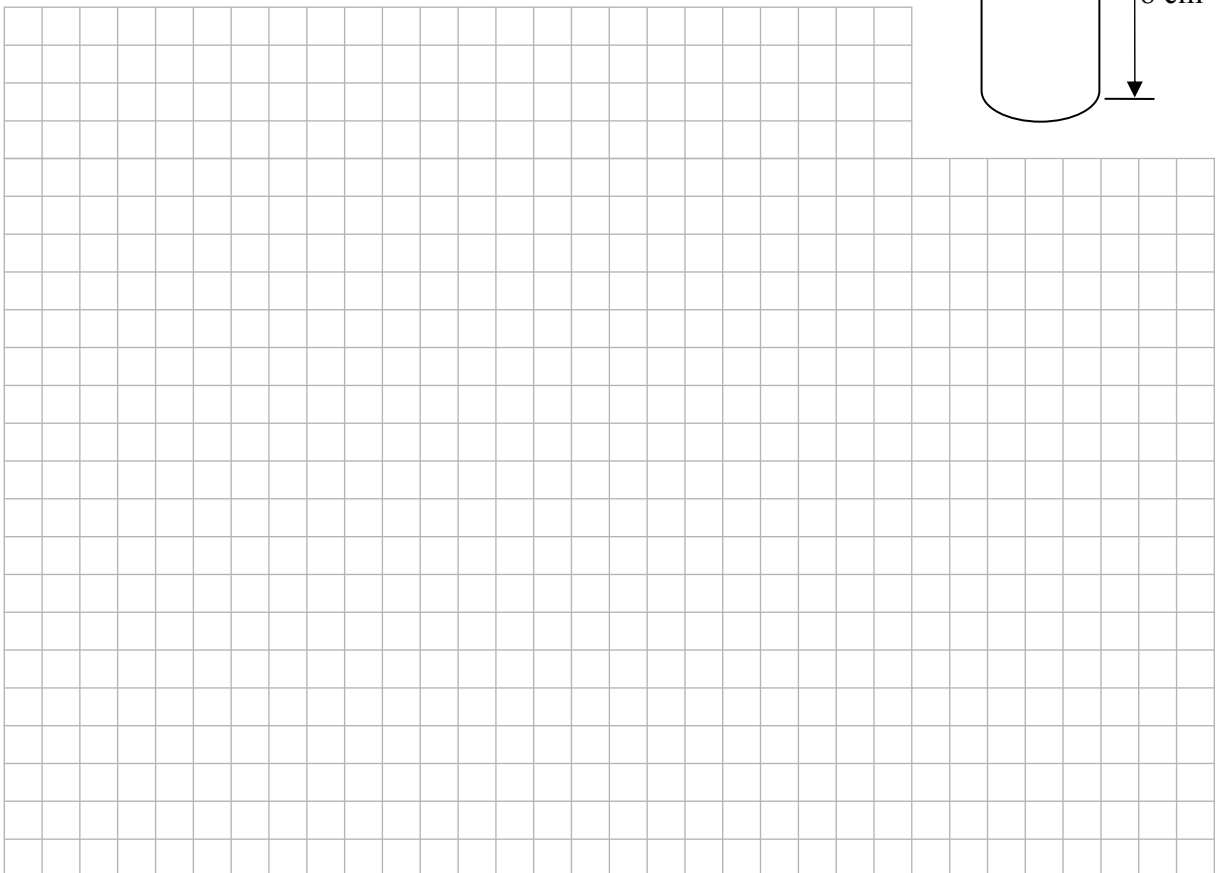
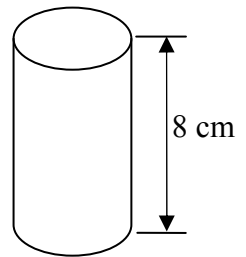


(c) A solid wax sphere has a diameter of 12 cm.

(i) Find the volume of the sphere in terms of π .

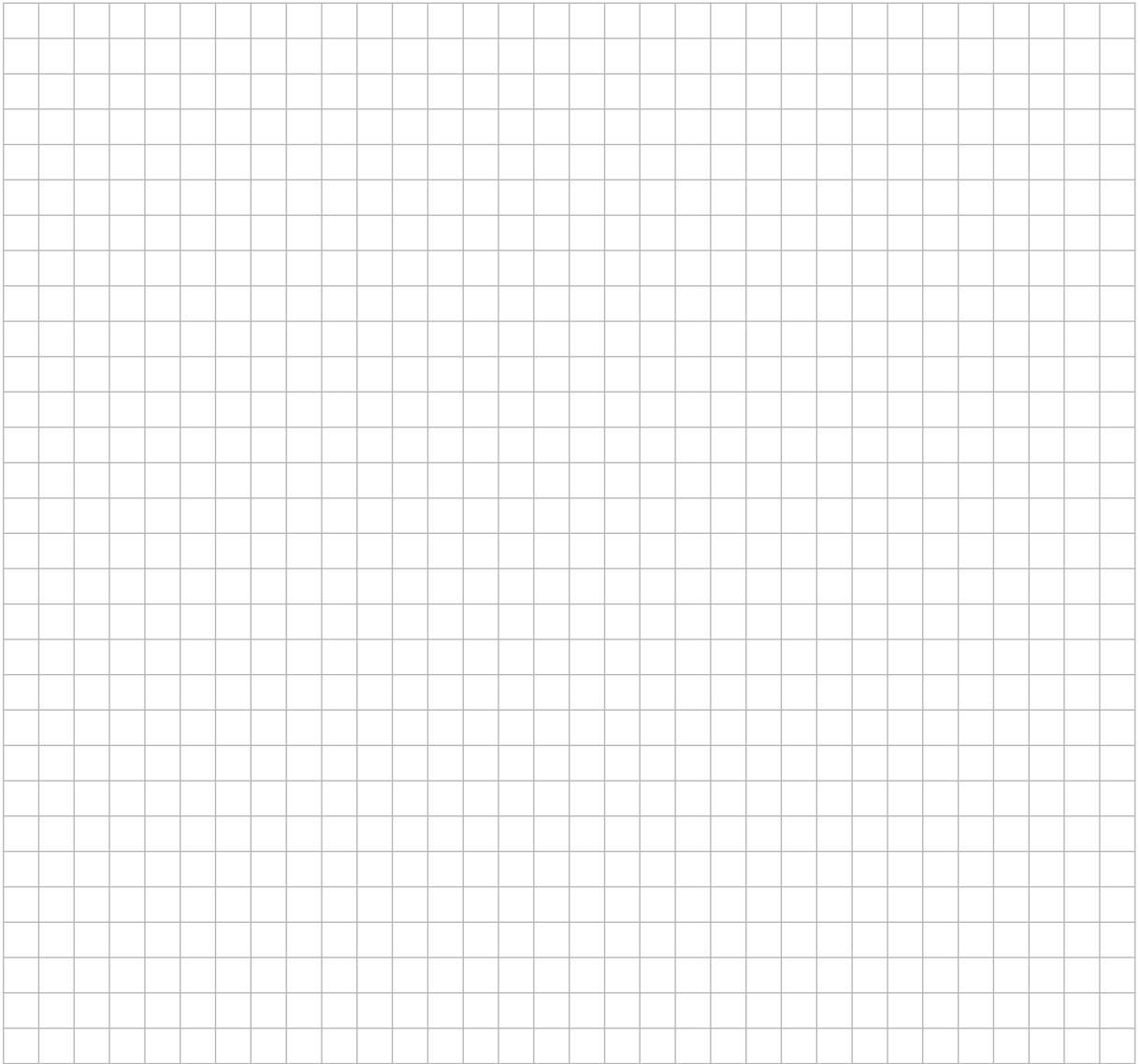


(ii) A solid wax cylinder has a height of 8 cm.
The volume of wax in four of these cylinders
is the same as the volume of wax in the sphere.
Find the radius of the cylinder.



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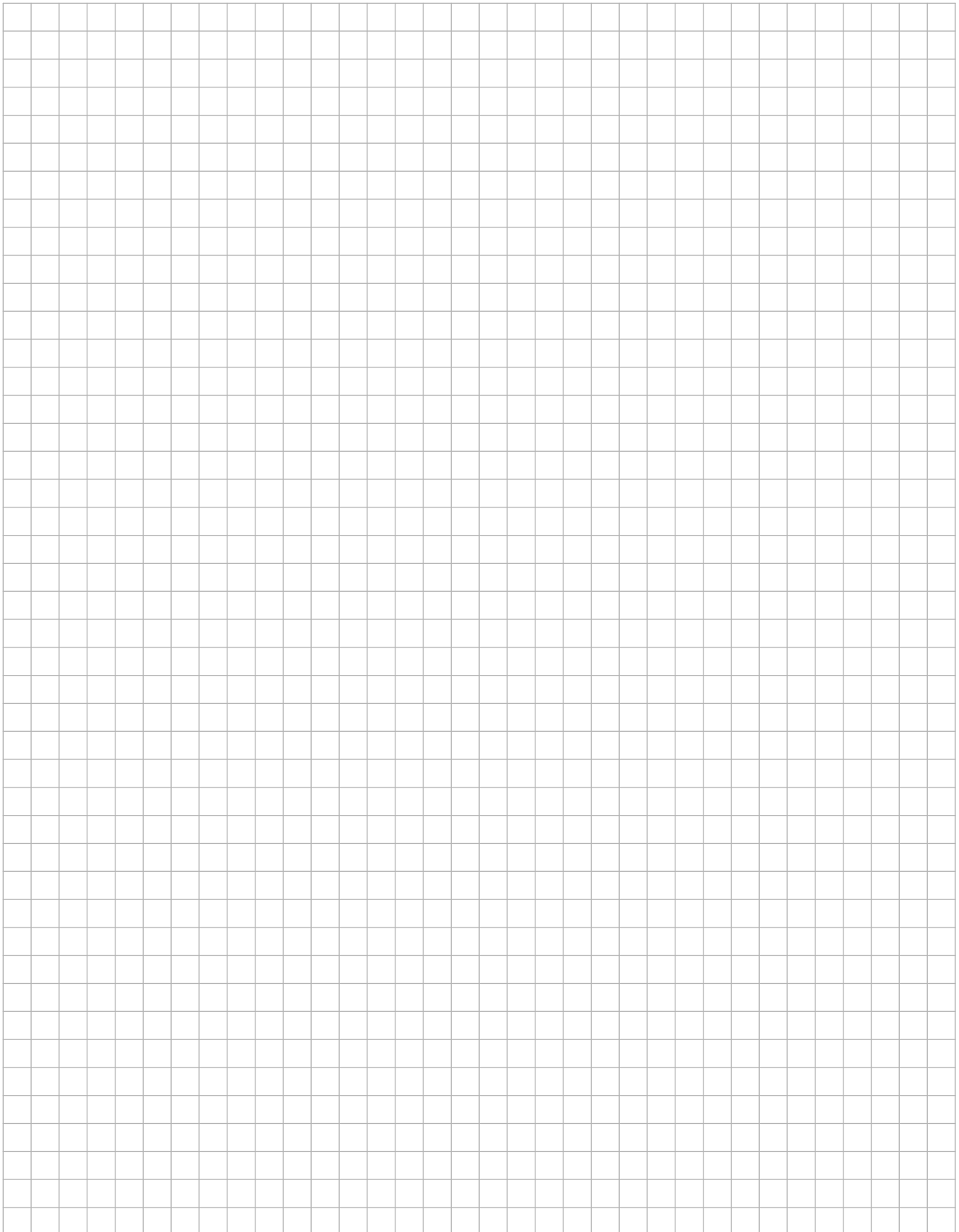
(i) Use Simpson's rule to estimate the area of the school yard.



(ii) The yard is resurfaced at a cost of €185 for every 10 square metres.
Find the cost of resurfacing the yard.



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