LCOL Basic Skills – Pack 6

Topics

Applied Arithmetic (Financial) – Can I calculate USC?

Last Needed - 2021

1 ▶ 2014 JCHL Paper 1 – Question 7 (i) ☐

Statistics – Can I calculate measures of central tendency (mean, mode, median)?

Last Needed – 2023

2 ▶ 2019 JCOL Paper 2 – Question 7 ☐

Coordinate Geometry – Can I calculate the area of a triangle?

Last Needed - 2020

3 ▶ 2007 LCOL Paper 2 – Question 2 (c) (i) ☐

Area, Perimeter and Volume – Can I calculate areas of sectors and lengths of arcs?

Last Needed - 2023

4 ▶ 2004 LCOL Paper 1 – Question 5 (b) ☐

Number – Can I compare different types of number ($\mathbb{N}$, $\mathbb{Z}$, $\mathbb{Q}$, $\mathbb{R}\backslash\mathbb{Q}$, $\mathbb{R}$)?

Last Needed - 2013

5 ▶ 2013 JCHL Paper 1 – Question 1 (a) ☐

www.mathspoints.ie for **worked solutions** to these questions.

🗀 LCOL Resources by Topic

🗀 LCOL Revision – 50 Common Questions

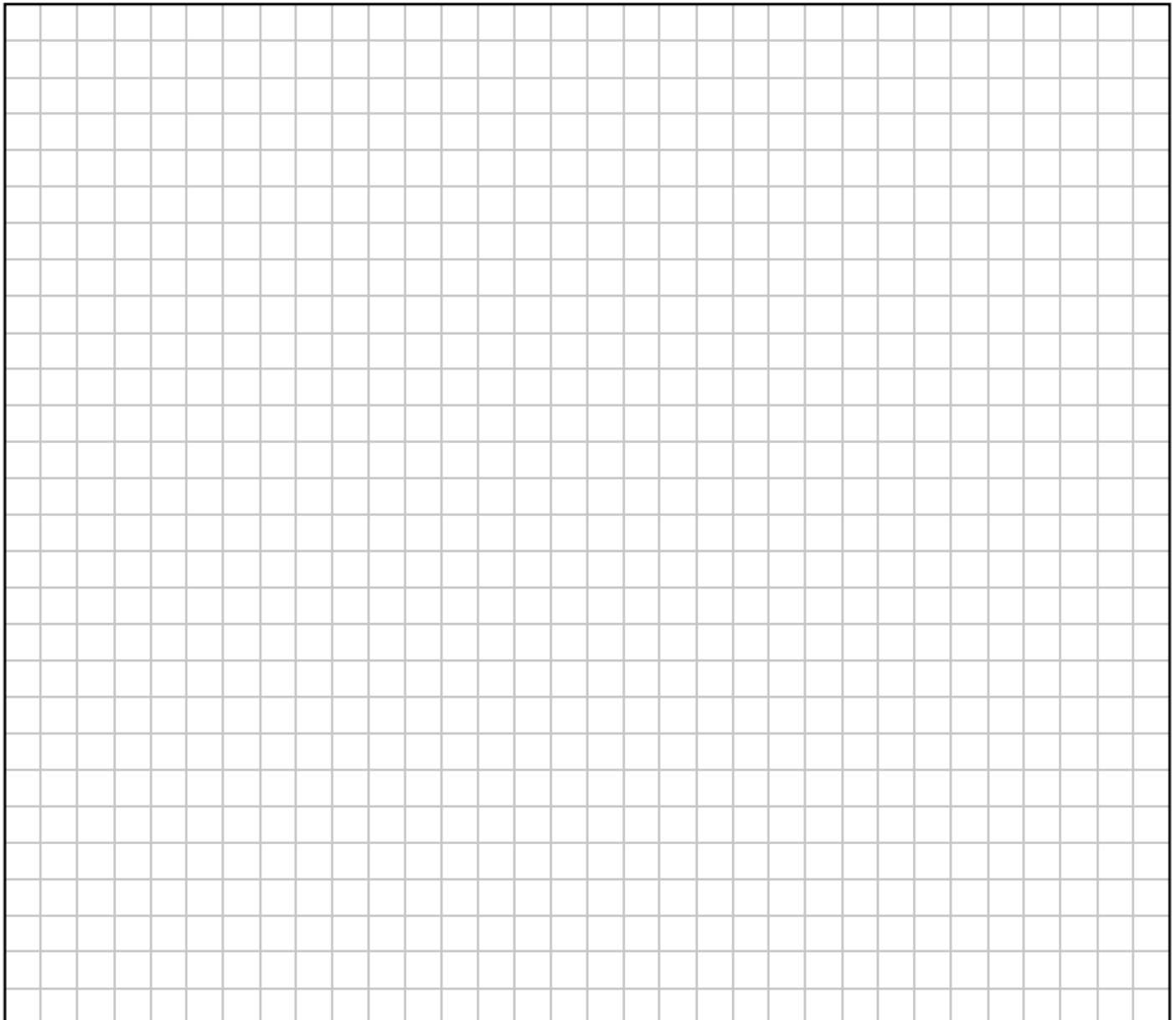# 1 ▶ 2014 JCHL Paper 1 – Question 7 (i)

Last year Elena had a gross income of €36,960.

She had to pay Universal Social Charge (USC) and income tax on her gross income.

The rates and bands of USC are as follows.

Income band	Rate of USC
Up to €10 036	2%
Between €10 036 and €16 016	4%
Above €16 016	7%

Find the amount of USC that was deducted from Elena's gross income last year.
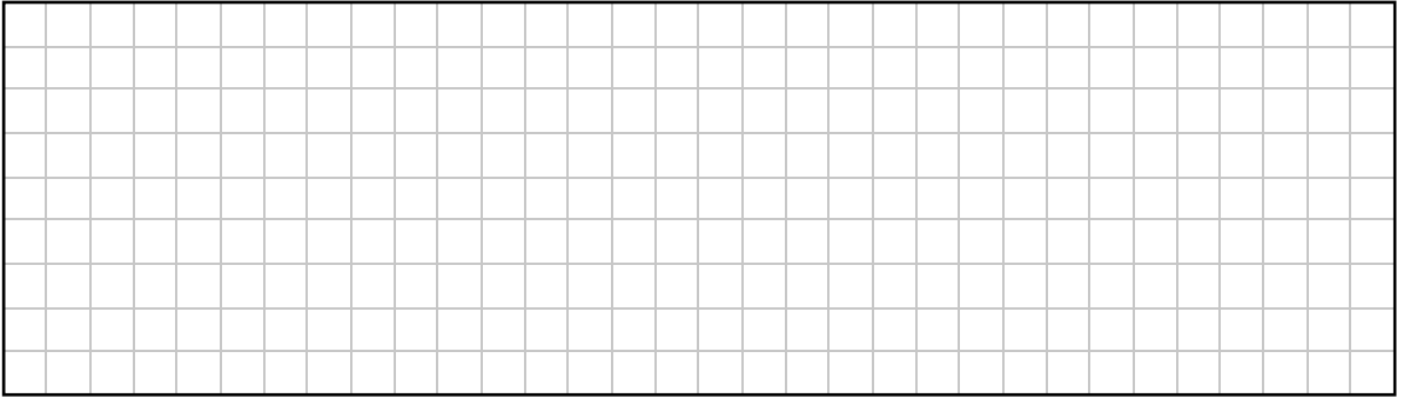
2 ▶ 2019 JCOL Paper 2 – Question 7
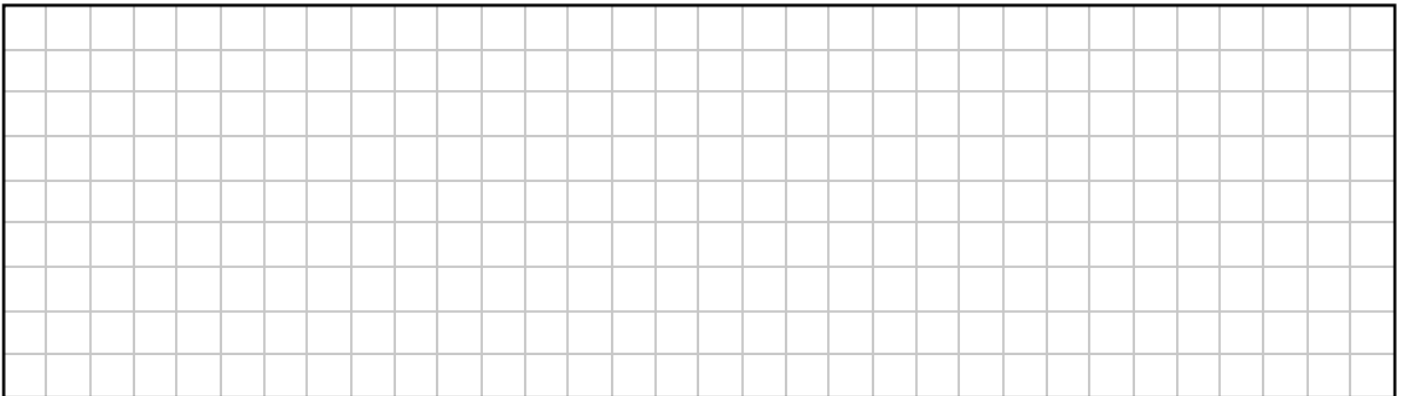
Filip measures the height of seven of the students in his class. Their heights, in cm, are:

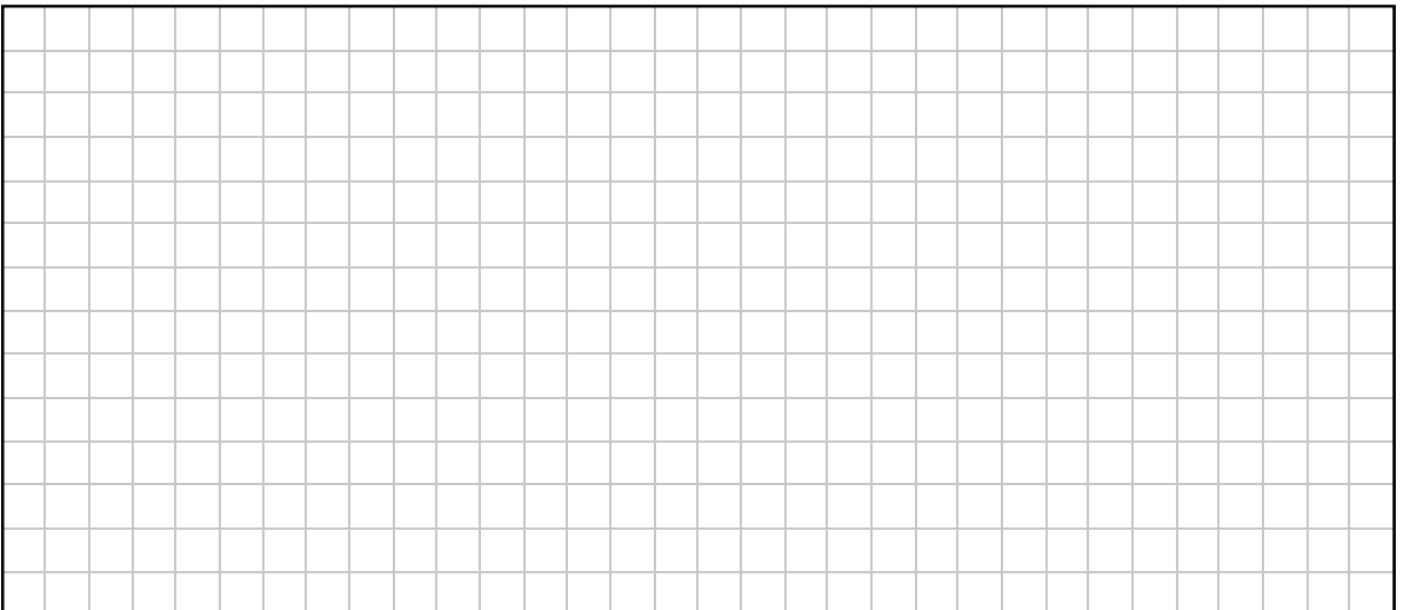166   168   168   169   172   173   177

(b)   Write down the **mode** of the data, in cm.

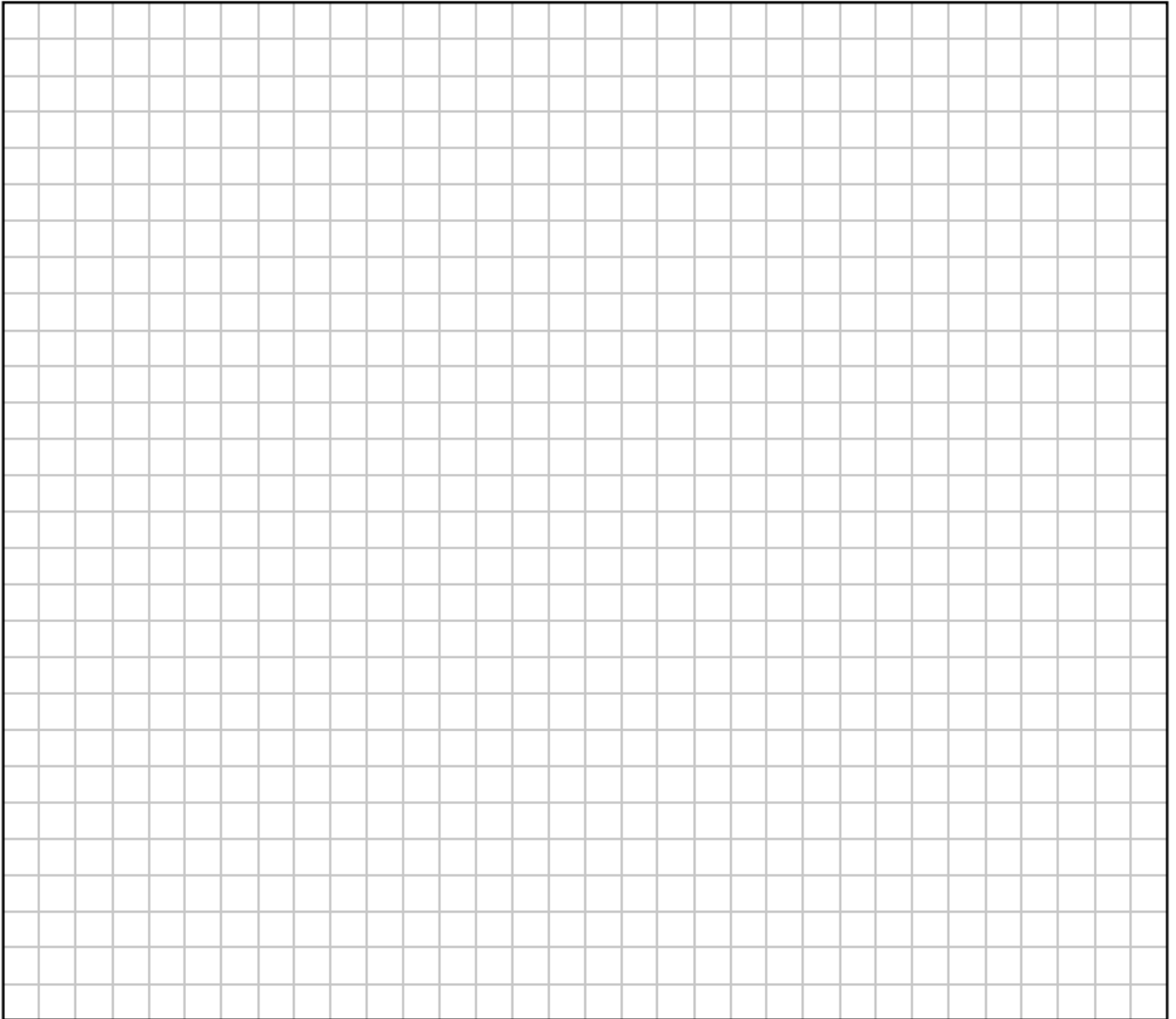**(c)**   Write down the **median** of the data, in cm.

(d)   Work out the **mean** of the data. Give your answer in cm, correct to one decimal place.

3 ▶ 2007 LCOL Paper 2 – Question 2 (c) (i)

$a(-4,\ 3)$, $b(6, -1)$ and $c(2,\ 7)$ are three points.
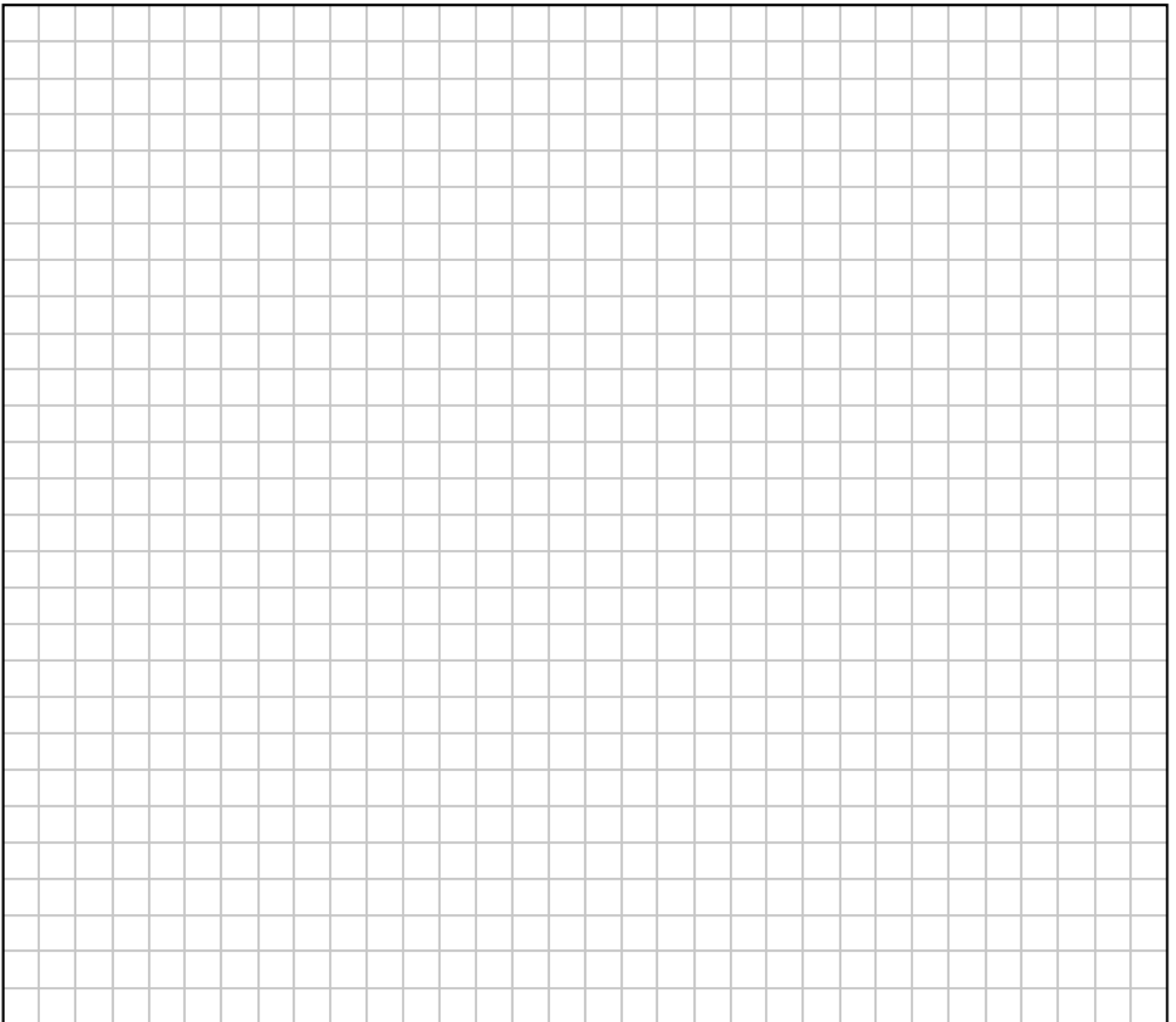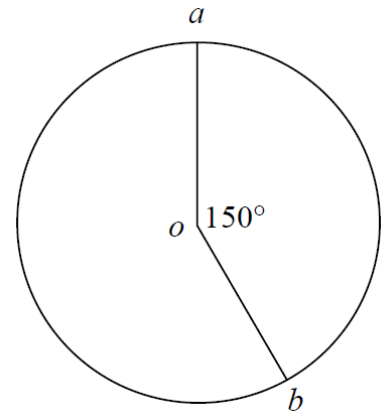
Find the area of the triangle abc.

4 ▶ 2004 LCOL Paper 1 – Question 5 (b)

A circle has centre o and radius 4 cm.

a and b are two points on the circle and $|\angle aob| = 150°$.

(i)   Find the area of the circle, correct to the nearest cm^2.

(ii) Find the area of the sector aob, correct to the nearest cm^2.

(iii) Find the length of the shorter arc ab, correct to the nearest cm.

5 ▶ 2013 JCHL Paper 1 – Question 1 (a)

(i) The columns in the table below represent the following sets of numbers:

Natural numbers ($\mathbb{N}$), Integers ($\mathbb{Z}$), Rational numbers ($\mathbb{Q}$), Irrational numbers ($\mathbb{R}\backslash\mathbb{Q}$) and Real numbers ($\mathbb{R}$).

Complete the table by writing either '**Yes**' or '**No**' into each box indicating whether each of the numbers $\sqrt{5}$, 8, -4, $3\frac{1}{2}$, $\frac{3\pi}{4}$ is or is not an element of each.

(One box has already been filled in. The '**Yes**' indicates that the number 8 is an element of the set of Real numbers, $\mathbb{R}$).

Number/Set	$\mathbb{N}$	$\mathbb{Z}$	$\mathbb{Q}$	$\mathbb{R}\backslash\mathbb{Q}$	$\mathbb{R}$
$\sqrt{5}$					
8					Yes
-4					
$3\frac{1}{2}$					
$\frac{3\pi}{4}$					

(ii) In the case of $\sqrt{5}$ explain your choice in relation to the set of Irrational numbers ($\mathbb{R}\backslash\mathbb{Q}$) (i.e. give a reason for writing either 'Yes' or 'No').