Pearson Edexcel International GCSE

# Mathematics A

## Modular Unit 1

### November 2024 Reconstructed Past Paper

STUDENT WORKBOOK

Adaptive working-space edition

28 adaptive question sections  79 marks

Selected from Linear Higher Papers 1H and 2H


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**L-to-M | CONVERTED MODULAR EDITION**

Selected from Linear Higher papers; not an original Modular examination paper.


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# About this reconstructed paper

Each question section keeps the exact source demand beside practical working space. A source grid, graph, table, or diagram is retained once at a usable size.

**Ownership rule:** Unit 2 owns a demand when its assessed or terminal statement is Unit 2, even if Unit 1 skills are prerequisites. For example, drawing boundary lines supports the Unit 2 region-of-inequalities demand. This book contains the demands owned by Unit 1; the selection contains 79 marks.

This is an Elite reconstructed teaching paper selected from official Linear Higher material; it is not an official Pearson Modular examination paper. Source assets are retained for private teaching use.

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## Question 01
4MA1-1H Q3 M01

MODULAR UNIT 1
**1 marks**

**3** (a) Simplify $\left(p^3\right)^5$

.....

**(1)**

WORKING SPACE

## Question 02

4MA1-1H Q3 M02

MODULAR UNIT 1

**2 marks**

(b) Expand and simplify $2n(4n + 3) + n(n - 4)$

.....

**(2)**

WORKING SPACE

## Question 03

4MA1-1H Q3 M03

MODULAR UNIT 1

**3 marks**

(c) Solve $\frac{2x + 5}{3} = 4 - x$

Show clear algebraic working.

$x =$ .....

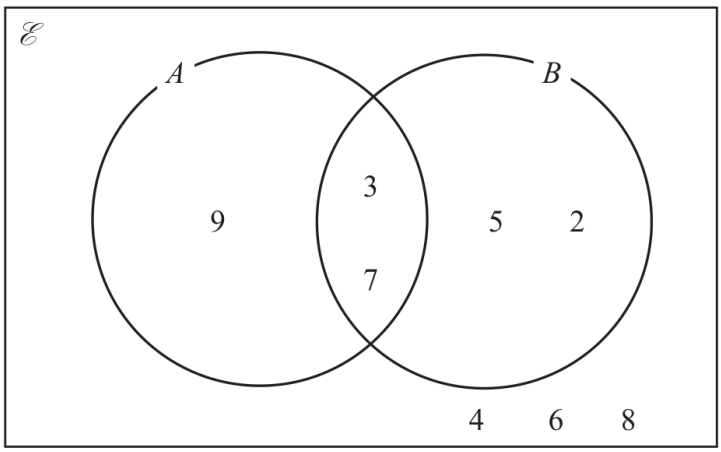
**(3)**

WORKING SPACE

## Question 04
4MA1-1H Q4 M01

MODULAR UNIT 1
1 marks

**4** Here is a Venn diagram.




(a) List the members of the set $B$

.....

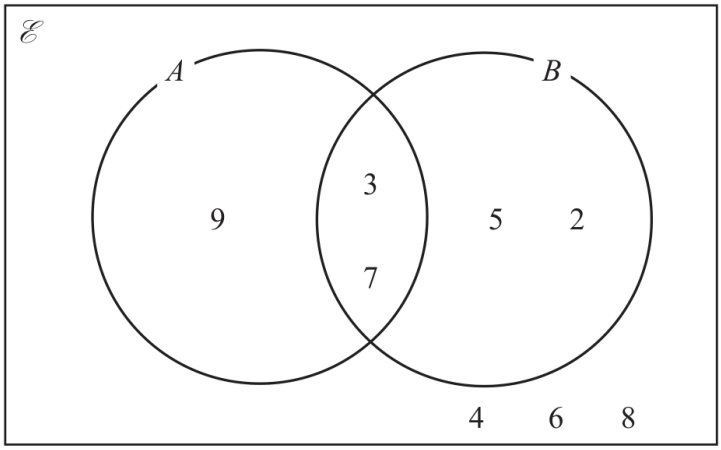
(1)

WORKING SPACE

## Question 05
4MA1-1H Q4 M02

MODULAR UNIT 1
1 marks

**4** Here is a Venn diagram.




(b) List the members of the set $A \cap B$

.....

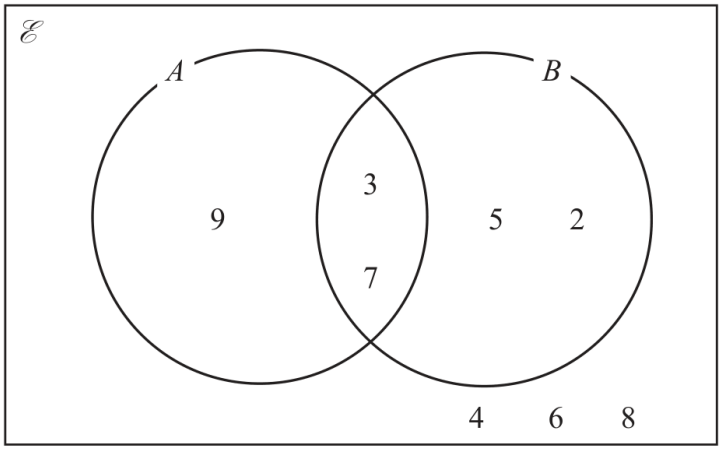
(1)

WORKING SPACE

## Question 06
4MA1-1H Q4 M03

MODULAR UNIT 1
1 marks

**4** Here is a Venn diagram.




(c) List the members of the set $A'$

.....

(1)

WORKING SPACE

## Question 07

4MA1-1H Q8 M01, M02

MODULAR UNIT 1

**3 marks**

**8** (a) (i) Factorise $x^2 + 5x - 24$

.....

**(2)**

(ii) Hence, solve $x^2 + 5x - 24 = 0$

.....

**(1)**

WORKING SPACE

## Question 08

4MA1-1H Q11 M01, M02

MODULAR UNIT 1

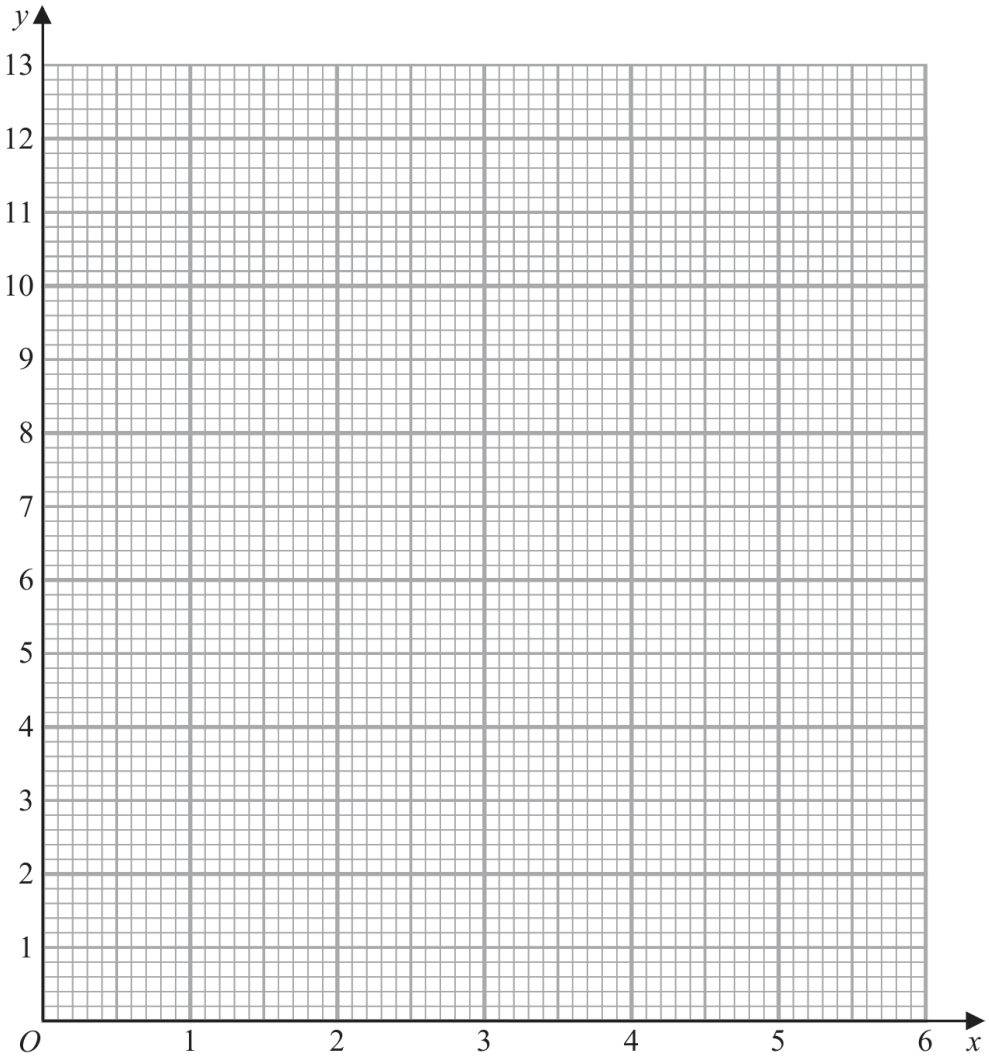
**4 marks**

**11** (a) Complete the table of values for $y = 2\left(x + \frac{1}{x}\right)$

| $x$ | 0.5 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| $y$ | | | 5 | 6.7 | | | 12.3 |

**(2)**

(b) On the grid, draw the graph of $y = 2\left(x + \frac{1}{x}\right)$ for $0.5 \leqslant x \leqslant 6$




**(2)**

## Question 09

4MA1-1H Q12 M01

MODULAR UNIT 1

**4 marks**

**12** $ABC$ is a right-angled triangle.
$D$ is a point on $BC$

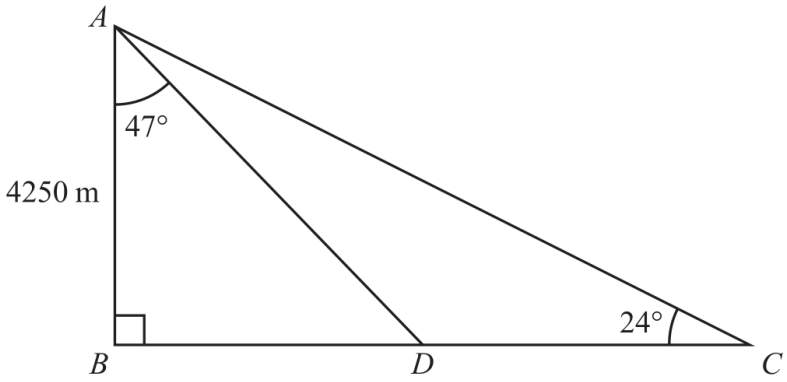



Diagram **NOT** accurately drawn

$AB = 4250$ m  angle $BAD = 47°$  angle $BCA = 24°$

Work out the length of $DC$
Give your answer correct to the nearest integer.

..... m

WORKING SPACE

## Question 10

4MA1-1H Q13 M01, M02

MODULAR UNIT 1

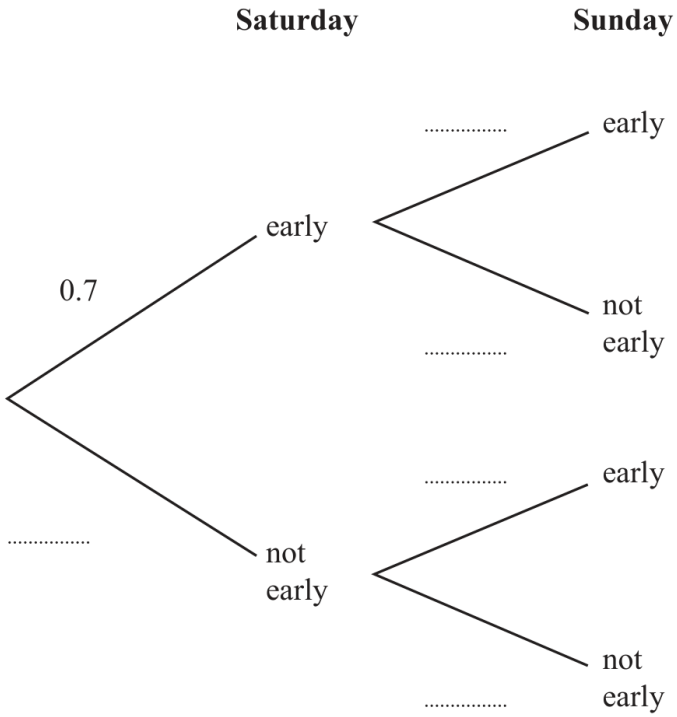
**4 marks**

**13** The probability that Thomas gets to work early on Saturday is 0.7

If Thomas gets to work early on Saturday, the probability that he will get to work early on Sunday is 0.9

If Thomas does **not** get to work early on Saturday, the probability that he will get to work early on Sunday is 0.6

(a) Use this information to complete the probability tree diagram.




**(2)**

(b) Work out the probability that Thomas gets to work early on both Saturday and Sunday.

.....

**(2)**

## Question 11

4MA1-1H Q15 M01

MODULAR UNIT 1

**3 marks**

**15** Write $3x(2x-1)(5x+4)$ in the form $ax^3 + bx^2 + cx$ where $a$, $b$ and $c$ are integers.

.....

WORKING SPACE

## Question 12

4MA1-1H Q16 M01

MODULAR UNIT 1

**4 marks**

**16** $OAPB$ is a sector of a circle, centre $O$

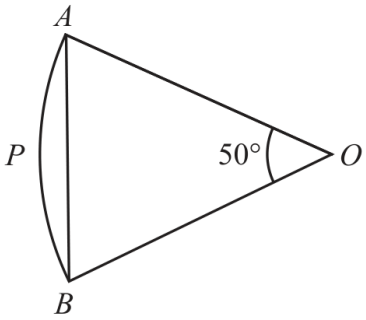



Diagram **NOT** accurately drawn

Angle $AOB = 50°$

Area of triangle $OAB = 120\ \text{cm}^2$

Work out the area of the sector $OAPB$
Give your answer correct to 3 significant figures.

..... $\text{cm}^2$

WORKING SPACE

## Question 13
4MA1-1H Q17 M01

MODULAR UNIT 1
1 marks

**17** (a) Express $\sqrt{675}$ in the form $n\sqrt{27}$ where $n$ is a positive integer.

.....

**(1)**

WORKING SPACE

## Question 14

4MA1-1H Q17 M02

MODULAR UNIT 1

**3 marks**

(b) Show that $\dfrac{5-\sqrt{2}}{\sqrt{2}-1}$ can be written in the form $a+b\sqrt{2}$ where $a$ and $b$ are integers.

**(3)**

WORKING SPACE

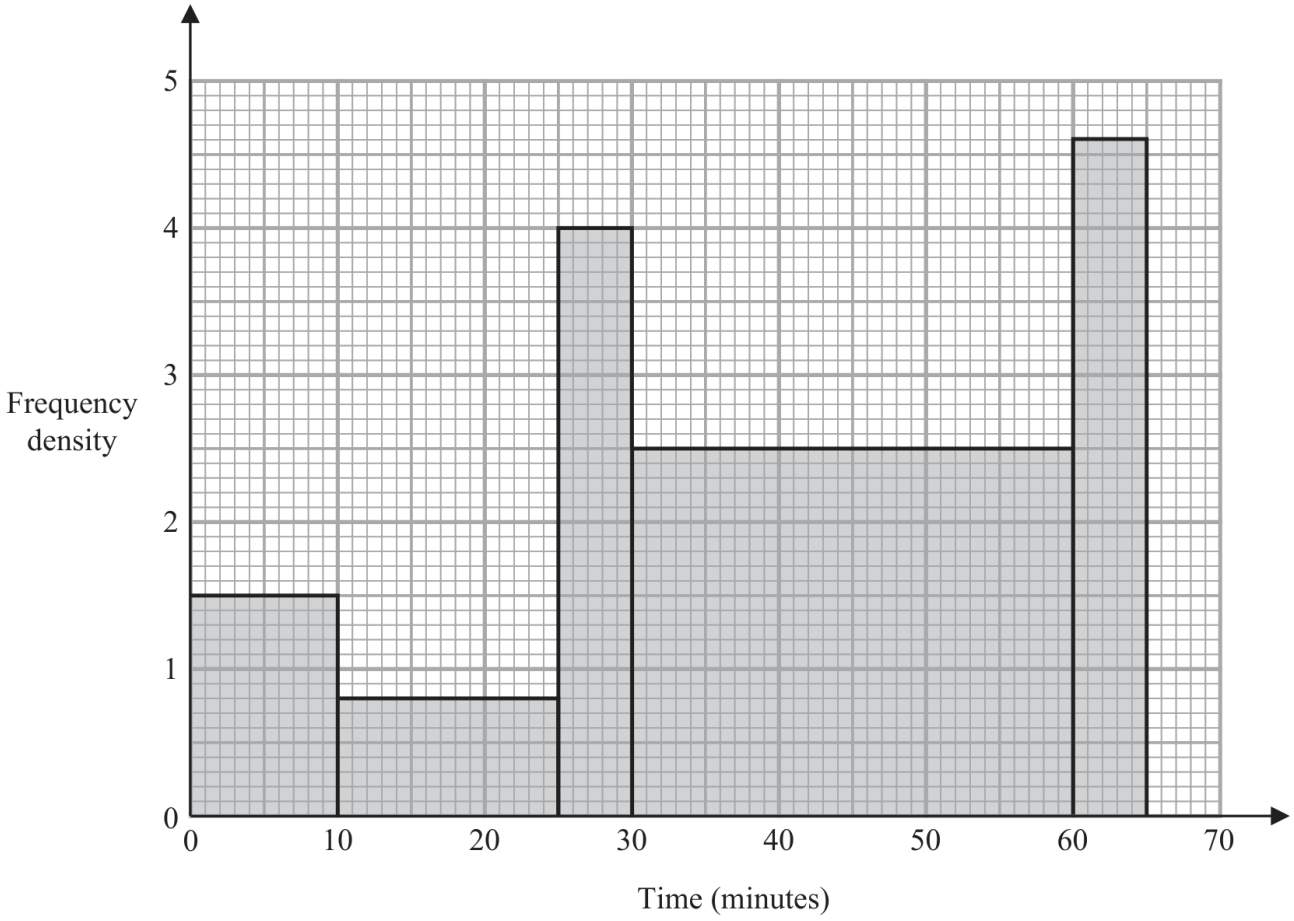
## Question 15

4MA1-1H Q18 M01

MODULAR UNIT 1

**4 marks**

**18** The histogram shows information about the times some students took to complete a puzzle.




Work out an estimate for the fraction of these students who took between 20 minutes and 60 minutes to complete the puzzle.

.....

## Question 16
4MA1-1H Q21 M01

MODULAR UNIT 1
**3 marks**

**21** $T = \dfrac{x^2 + y^2}{w}$

$x = 28.4$ correct to 1 decimal place.

$y = 17$ correct to 2 significant figures.

$w = 90$ correct to the nearest 5

Calculate the upper bound for the value of $T$

Give your answer correct to 3 significant figures.
Show your working clearly.

.....

WORKING SPACE

## Question 17

4MA1-2H Q1 M01

MODULAR UNIT 1

**3 marks**

**1** Show that $1\frac{5}{7} \times 2\frac{3}{16} = 3\frac{3}{4}$

WORKING SPACE

## Question 18
4MA1-2H Q2 M01

MODULAR UNIT 1
1 marks

**2** The length of a table is measured as 1.4 metres correct to one decimal place.

(a) Write down the upper bound of the length of the table.

..... metres
(1)

WORKING SPACE

## Question 19
4MA1-2H Q2 M02

MODULAR UNIT 1
1 marks

**2** The length of a table is measured as 1.4 metres correct to one decimal place.

(b) Write down the lower bound of the length of the table.

..... metres
(1)

WORKING SPACE

## Question 20
4MA1-2H Q3 M01

MODULAR UNIT 1
**3 marks**

**3** The diagram shows triangle $PQR$

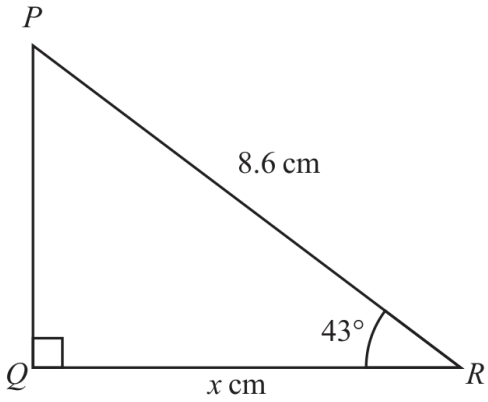



Diagram **NOT** accurately drawn

Work out the value of $x$
Give your answer correct to one decimal place.

$x =$ .....

WORKING SPACE

## Question 21
4MA1-2H Q5 M01

MODULAR UNIT 1
**4 marks**

**5** Cody has a biased 5-sided spinner, numbered 1, 2, 3, 4, 5

The table gives the probabilities that when the spinner is spun it will land on 2 or on 3 or on 5

| **Number** | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| **Probability** | | 0.14 | 0.17 | | 0.21 |

The probability that the spinner will land on 1 is the same as the probability that the spinner will land on 4

Cody is going to spin the spinner 400 times.

Work out an estimate for the number of times the spinner will land on 4

.....

WORKING SPACE

## Question 22

4MA1-2H Q12 M01

MODULAR UNIT 1

3 marks

**12** (a) Solve $\frac{3x+2}{5} - \frac{2x+1}{3} = x$

Show clear algebraic working.

$x =$ .....

(3)

WORKING SPACE

## Question 23

4MA1-2H Q14 M01

MODULAR UNIT 1

3 marks

**14** Given that $\frac{3^{2n+3}}{3^4} = 3^3 \times 3^{1-2n}$

find the value of $n$
Show your working clearly.

$n =$ .....

WORKING SPACE

## Question 24

4MA1-2H Q15 M01

MODULAR UNIT 1

**2 marks**

**15** Use algebra to show that $0.7\dot{6}\dot{3} = \frac{42}{55}$

WORKING SPACE

## Question 25

4MA1-2H Q18 M01

MODULAR UNIT 1

**4 marks**

**18** The straight line **L** is perpendicular to the straight line with equation $2x + y = 9$ and passes through the point with coordinates (8, 11)

Find an equation for **L**
Give your answer in the form $y = mx + c$

.....

WORKING SPACE

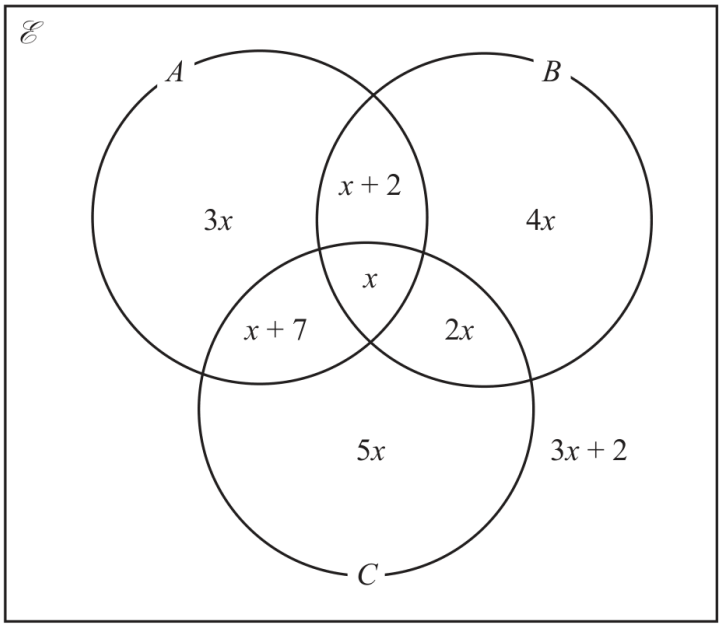
## Question 26

4MA1-2H Q21 M01

MODULAR UNIT 1

**4 marks**

**21** The Venn diagram shows information about the numbers of items in set $A$, set $B$ and set $C$, where $x$ is an integer.




Given that $\mathrm{n}(A \cup B)' = 26$

find $\mathrm{n}(A' \cap C)$

$\mathrm{n}(A' \cap C) =$ .....

## Working space for Question 26

Continue your method

UNIT 1
**4 marks**

WORKING SPACE

## Question 27

4MA1-2H Q23 M01

MODULAR UNIT 1

**4 marks**

**23** Show that $\dfrac{16x^2 - 36}{x - 7} \div \dfrac{2x^2 + 7x + 6}{x^2 - 5x - 14} - (7 + 8x) = n$

where $n$ is an integer to be found.
Show clear algebraic working.

WORKING SPACE

## Question 28

4MA1-2H Q25 M01

MODULAR UNIT 1

**5 marks**

**25** The diagram shows an equilateral triangle $ABC$ and a circle with centre $O$

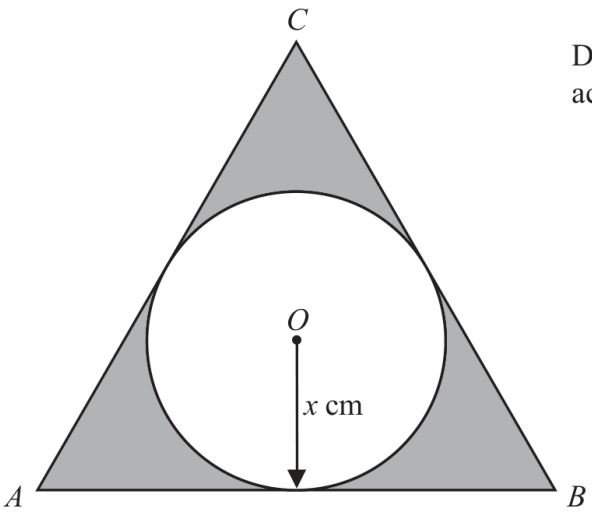



Diagram **NOT** accurately drawn

$AB$, $BC$ and $CA$ are tangents to the circle.

The radius of the circle is $x$ cm

The total area, in cm$^2$, of the regions shown shaded in the diagram is $nx^2$

Find the value of $n$
Give your answer correct to 3 significant figures.

## Question 28 (continued)

4MA1-2H Q25 M01

MODULAR UNIT 1

**5 marks**

$n =$ .....

WORKING SPACE