ELITE MATHEMATICS

Modular Unit 1

Linear to Modular | Standard papers

Student question book

24 question entries | 91 marks

Linear questions reorganised for Modular practice. Not an original Pearson Modular examination.

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Student edition | June 2026 | Elite Mathematics

Question 1

3 marks

June 2026 | 4MA1/1H | Mixed-number subtraction

1 Show that $4\frac{1}{7} - 2\frac{3}{5} = 1\frac{19}{35}$

(Total for Question 1 is 3 marks)

Question 2

3 marks

June 2026 | 4MA1/1H | Right-triangle trigonometry

2

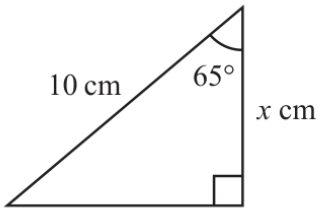


Diagram **NOT** accurately drawn

Work out the value of x
Give your answer correct to 3 significant figures.

$x =$ .....

(Total for Question 2 is 3 marks)

Question 3

3 marks

June 2026 | 4MA1/1H | Set operations and counterexamples

3 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19\}$

$A = \{\text{factors of } 20\}$

$B = \{\text{multiples of } 5\}$

(a) List the members of the set

(i) $A \cup B$

.....

(1)

(ii) $A \cap B'$

.....

(1)

$C = \{\text{prime numbers}\}$

Ana writes down the statement $A \cap C = \varnothing$
Ana's statement is wrong.

(b) Explain why.

.....

.....

(1)

(Total for Question 3 is 3 marks)

Question 4

4 marks

June 2026 | 4MA1/1H | Average speed over a two-stage journey

4 Henri competes in a race.

For the first part of the race Henri cycles 60 km at an average speed of 24 km/h
For the remaining part of the race Henri runs for 1 hour and 15 minutes at an average speed of 12 km/h

Work out Henri's average speed for the whole race.
Give your answer in km/h
Show your working clearly.

..... km/h

(Total for Question 4 is 4 marks)

Question 5 | parts a, b

3 marks

June 2026 | 4MA1/1H | Elementary algebra, formula rearrangement and inequalities

5 (a) Expand $4e(2e-3)$

.....

(1)

(b) Expand and simplify $(f+3)(f-6)$

.....

(2)

Question 6

2 marks

June 2026 | 4MA1/1H | Algebraic index laws

6 Simplify $\left(4x^5y^6\right)^3$

.....

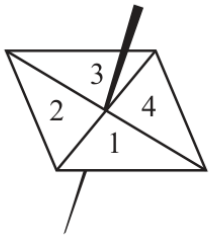
(Total for Question 6 is 2 marks)

Question 7

4 marks

June 2026 | 4MA1/1H | Expected frequency for a biased spinner

7 Here is a biased 4-sided spinner.



The table gives information about the probability that, when the spinner is spun once, it will land on each number.

Number	1	2	3	4
Probability	0.12	x	$2x$	0.16

Nevan spins the spinner 500 times.

Work out the expected number of times that the spinner lands on an even number.

.....

(Total for Question 7 is 4 marks)

Question 8

3 marks

June 2026 | 4MA1/1H | Converting speed units

8 Change a speed of 70 metres per second to a speed in kilometres per hour.
Show your working clearly.

..... km/h

(Total for Question 8 is 3 marks)

Question 11

5 marks

June 2026 | 4MA1/1H | Perimeter of a semicircle and two right triangles

11 The diagram shows a shaded shape $ABCDEO$ made from a semicircle BCD and two identical right-angled triangles ABO and EDO

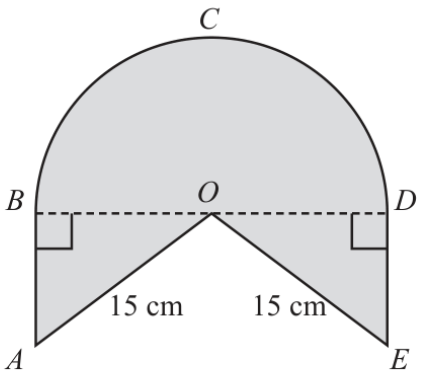


Diagram **NOT** accurately drawn

BD is the diameter of the semicircle.
O is the midpoint of BD

angle ABO = angle EDO = 90° $AO = EO = 15$ cm

The area of semicircle BCD is $227\ \text{cm}^2$

Work out the perimeter of the shaded shape.
Show your working clearly.
Give your answer correct to one decimal place.

..... cm

(Total for Question 11 is 5 marks)

Question 12

6 marks

June 2026 | 4MA1/1H | Index equations and expansion

12 $\dfrac{2^3}{8^x} = 64$

(a) Find the value of x
Show clear algebraic working.

$x =$ .....

(3)

(b) Expand and simplify $4t(t + 5)(2t - 3)$

.....

(3)

(Total for Question 12 is 6 marks)

Question 13

4 marks

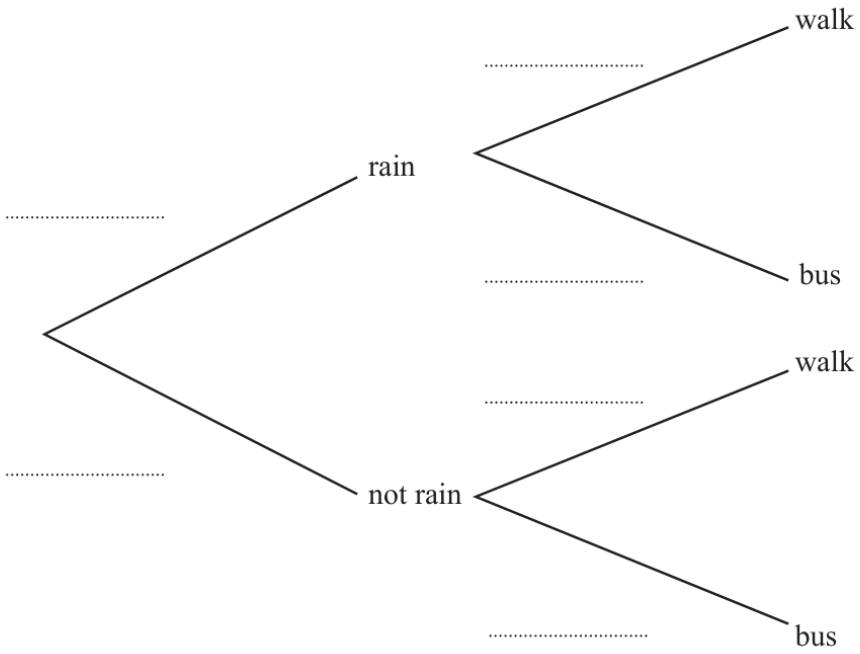
June 2026 | 4MA1/1H | Conditional probability tree

13 On any school day, Paulo either walks to school or travels by bus to school.

The probability that it rains on any school day is 0.15

If it rains on a school day, the probability that Paulo walks to school is 0.2
If it does not rain on a school day, the probability that Paulo walks to school is 0.75

(a) Complete the probability tree diagram for this information.



(2)

(b) Work out the probability that on a school day, it rains and Paulo walks to school.

.....

(2)

(Total for Question 13 is 4 marks)

Question 15

2 marks

June 2026 | 4MA1/1H | Gradient from coordinates

15 Point A has coordinates $(-3, 4)$
Point B has coordinates $(2, -6)$

Work out the gradient of the line AB

.....

(Total for Question 15 is 2 marks)

Question 16

5 marks

June 2026 | 4MA1/1H | Non-right-triangle trigonometry

16 The diagram shows triangle ABC

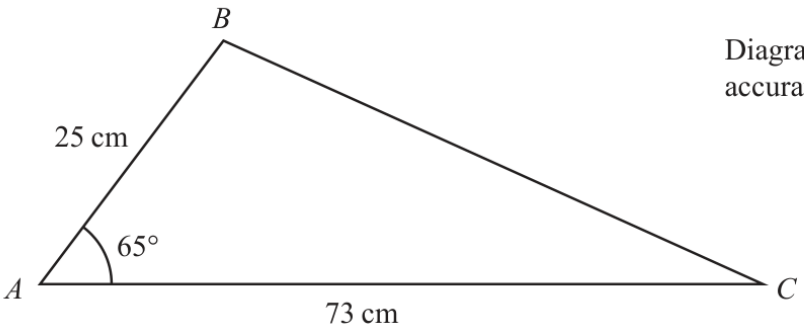


Diagram **NOT** accurately drawn

$AB = 25$ cm $\quad$ $AC = 73$ cm $\quad$ angle $BAC = 65°$

(a) Work out the length of BC
Give your answer correct to 3 significant figures.

..... cm

(3)

(b) Work out the area of the triangle.
Give your answer correct to 3 significant figures.

..... cm^2

(2)

(Total for Question 16 is 5 marks)

Question 17

3 marks

June 2026 | 4MA1/1H | Surd expansion in a specified form

17 Show that $\left(4-\sqrt{20}\right)\left(5-2\sqrt{5}\right)$ can be written in the form $a-\sqrt{b}$

where a and b are integers.

(Total for Question 17 is 3 marks)

Question 18

3 marks

June 2026 | 4MA1/1H | Simplifying an algebraic fraction

18 Simplify fully $\dfrac{4x^2 - 9}{2x^2 - 5x - 12}$

Show clear algebraic working.

.....

(Total for Question 18 is 3 marks)

Question 20

5 marks

June 2026 | 4MA1/1H | Bounds and justified accuracy

20 The final velocity, v m/s, of an object is given by

$$v = 2\left(\frac{s}{t}\right) - u$$

where

$s = 100$ correct to the nearest integer
$t = 1.68$ correct to 2 decimal places
$u = 0.5$ correct to 1 decimal place

By considering bounds, work out the value of v to a suitable degree of accuracy.
Show your working clearly.

.....

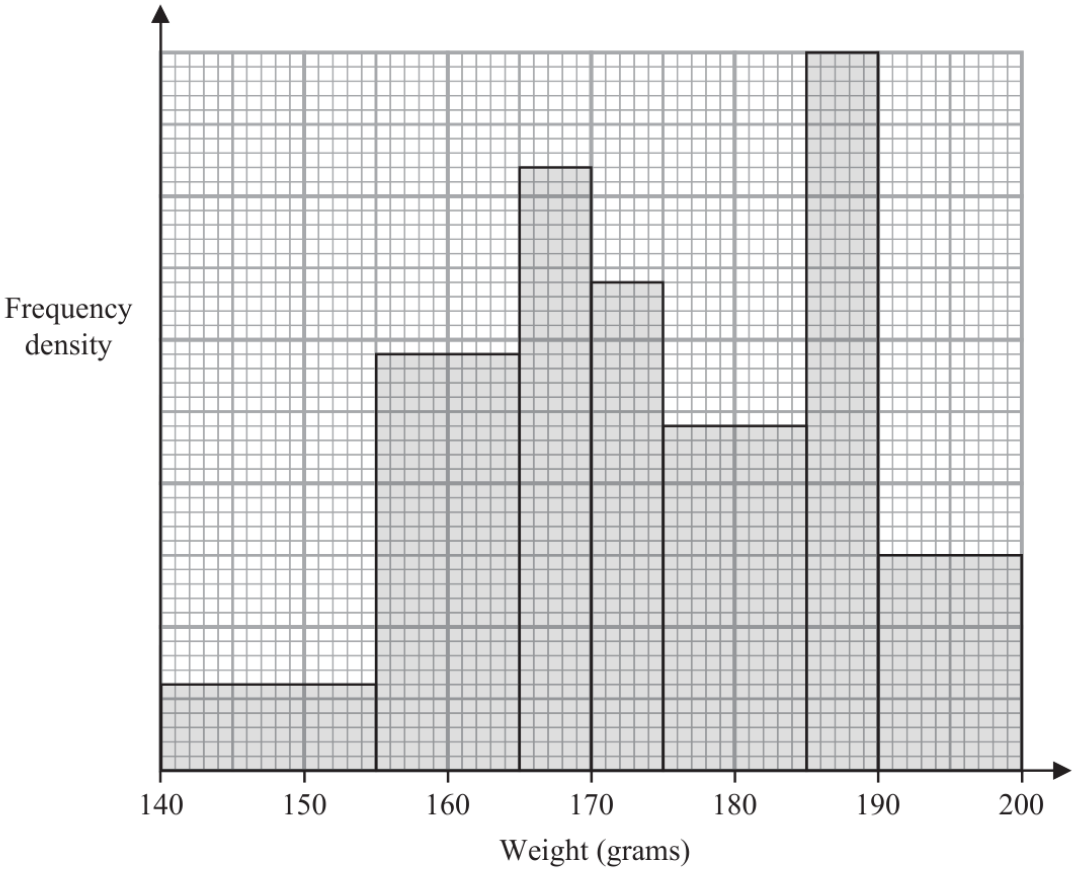
(Total for Question 20 is 5 marks)

Question 22

5 marks

June 2026 | 4MA1/1H | Histogram frequency and conditional proportion

22 The histogram gives information about the weights, in grams, of all the apples in a shop.



There are 9 apples with a weight between 140 grams and 155 grams.

(a) Work out the number of apples with a weight less than 175 grams.

.....

(3)

An apple is classified as a large apple if it has a weight of more than 180 grams.
One of the large apples is chosen at random.

(b) Work out the probability that it has a weight of more than 190 grams.

.....

(2)

(Total for Question 22 is 5 marks)

Question 23

5 marks

June 2026 | 4MA1/1H | Probability without replacement leading to a quadratic

23 A bag contains x marbles.
12 of the marbles are pink and the rest are yellow.

Greta takes at random 2 marbles from the bag.

The probability that Greta takes a pink marble and a yellow marble is $\frac{18}{47}$

Work out the value of x
Show clear algebraic working.

$x =$ .....

(Total for Question 23 is 5 marks)

Question 25

5 marks

June 2026 | 4MA1/1H | Angle between a line and a plane

25 The diagram shows a triangular prism $ABCDEF$ with horizontal rectangular base $ABCD$
F is vertically above A

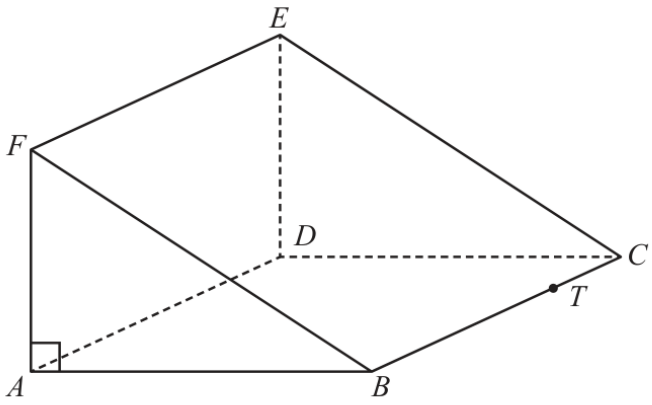


Diagram **NOT** accurately drawn

$AF = 12\,\text{cm}$ angle $ABF = 30°$ angle $BAF = 90°$

T is the point on the line BC such that $BF : BT = 3 : 2$

Work out the size of the angle between the line FT and the plane $ABCD$
Give your answer correct to one decimal place.
Show your working clearly.

..... °

(Total for Question 25 is 5 marks)

Question 9

7 marks

June 2026 | 4MA1/2H | Indices and factorisation

9 (a) Find the value of $7n^0$ where $n > 0$

.....

(1)

(b) Simplify fully $\left(2m^5p^4\right)^3$

.....

(2)

(c) Factorise fully $18c^5w^2 + 30cw^3$

.....

(2)

(d) Factorise $x^2 + 6x - 27$

.....

(2)

(Total for Question 9 is 7 marks)

Question 12

2 marks

June 2026 | 4MA1/2H | Set operations

12 $\mathscr{E} = \{\text{integers } x \text{ such that } 20 \leqslant x \leqslant 32\}$

$A = \{x \text{ such that } x < 27\}$

$B = \{x \text{ such that } 25 \leqslant x \leqslant 30\}$

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

.....

(1)

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

.....

(1)

(Total for Question 12 is 2 marks)

Question 15

4 marks

June 2026 | 4MA1/2H | Sector area and perimeter

15 The diagram shows a sector $OABC$ of a circle, centre O

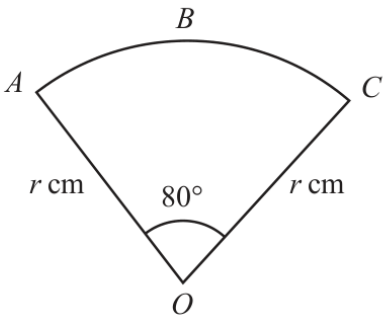


Diagram **NOT** accurately drawn

$OA = OC = r$ cm angle $AOC = 80^\circ$

The area of the sector $OABC$ is 32π cm^2

Work out the perimeter of the sector $OABC$
Give your answer correct to one decimal place.

..... cm

(Total for Question 15 is 4 marks)

Question 17

2 marks

June 2026 | 4MA1/2H | Recurring decimal proof

17 Use algebra to show that $0.5\dot{3}\dot{9} = \frac{89}{165}$

(Total for Question 17 is 2 marks)

Question 20

3 marks

June 2026 | 4MA1/2H | Independent events

20 A box only contains green counters and red counters.

Nuno chooses at random a counter from the box.
He puts the counter back into the box.

Nuno then chooses at random a second counter from the box.

The probability that Nuno chooses at least one red counter is $\frac{39}{64}$

Work out the probability that Nuno chooses exactly one red counter.

.....

(Total for Question 20 is 3 marks)