Write your name here

Surname	Other names

Scholarship Paper

Subject: Mathematics Paper I
Paper:
Time: 1 Hour

You must have:
Pen, Calculator, Ruler
Pencil

Total Marks
61

Instructions
An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

- Answer **ALL** questions.
- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name.

Information
- The total mark for this paper is **61**
- The marks for **each** question are shown in brackets
  - *use this as a guide as to how much time to spend on each question.*

Advice
- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Write your answers neatly and in good English.

Questions

Q1.

* The diagram shows the floor plan of Mary's conservatory.

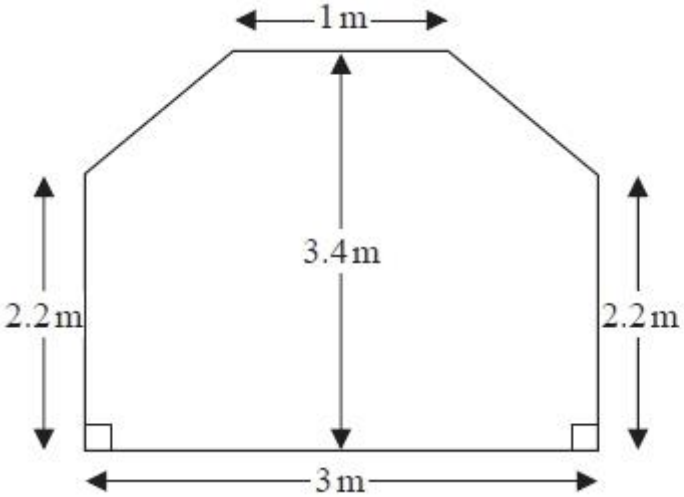


Diagram **NOT** accurately drawn

Mary is going to cover the floor with tiles.

The tiles are sold in packs.
One pack of tiles will cover $2m^2$
A pack of tiles normally costs £24.80
Mary gets a discount of 25% off the cost of the tiles.

Mary has £100

Does Mary have enough money to buy all the tiles she needs?
You must show all your working.

(Total for question = 5 marks)

Q2.

The distance from Fulbeck to Ganby is 10 miles.
The distance from Ganby to Horton is 18 miles.

Raksha is going to drive from Fulbeck to Ganby.
Then she will drive from Ganby to Horton.

Raksha leaves Fulbeck at 10 00
She drives from Fulbeck to Ganby at an average speed of 40mph.

Raksha wants to get to Horton at 10 35

Work out the average speed Raksha must drive at from Ganby to Horton.

..... mph

(Total for question = 3 marks)

Q3.

There are only blue counters, green counters, red counters and yellow counters in a bag. Olga is going to take at random a counter from the bag.

The table shows the probability that Olga will take a blue counter and the probability that she will take a yellow counter.

Colour	blue	green	red	yellow
Probability	0.4			0.15

The number of red counters in the bag is 4 times the number of green counters in the bag.

Complete the table.

(Total for question = 3 marks)

Q4.

A shop sells packets of envelopes.

There are 5 envelopes in a small packet.
There are 20 envelopes in a large packet.

There is a total of T envelopes in x small packets and y large packets.

Write down a formula for T in terms of x and y.

.....

(Total for question = 3 marks)

Q5.

*Redlands School sent *x* students to a revision day.
St Samuel's School sent twice as many students as Redlands School.
Francis Long School sent 7 fewer students than Redlands School.

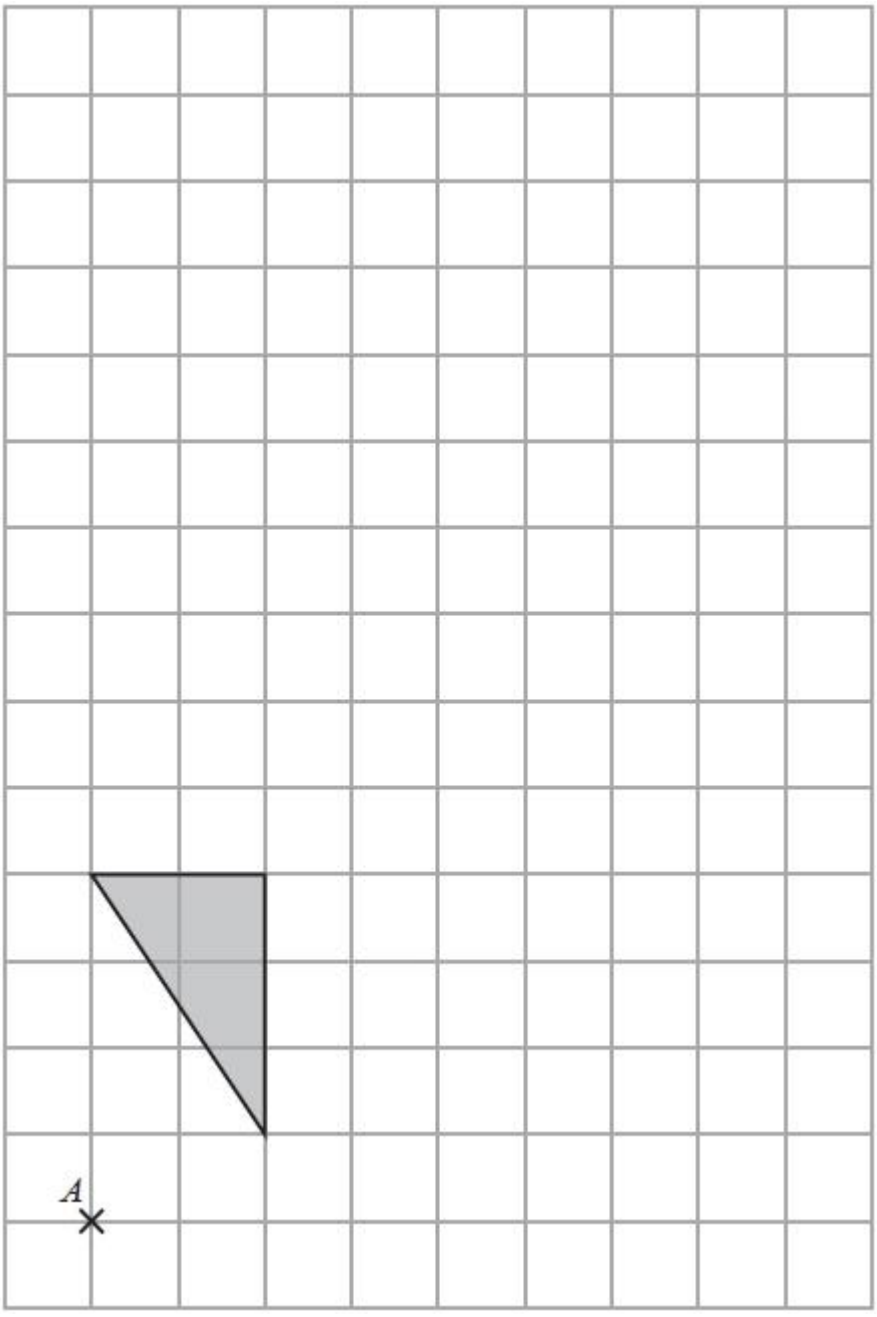
Each student paid £15 for the revision day.
The students paid a total of £1155

Work out how many students were sent by each school to the revision day.
You must show all your working.

(Total for question = 5 marks)

Q6.

A shaded shape is shown on the grid.



On the grid, enlarge the shape by a scale factor of 2, centre *A*.

(Total for question = 2 marks)

Q7.

(a) Expand $7(x + 5)$

.....

(1)

(b) Expand $3y(4y - 3)$

.....

(1)

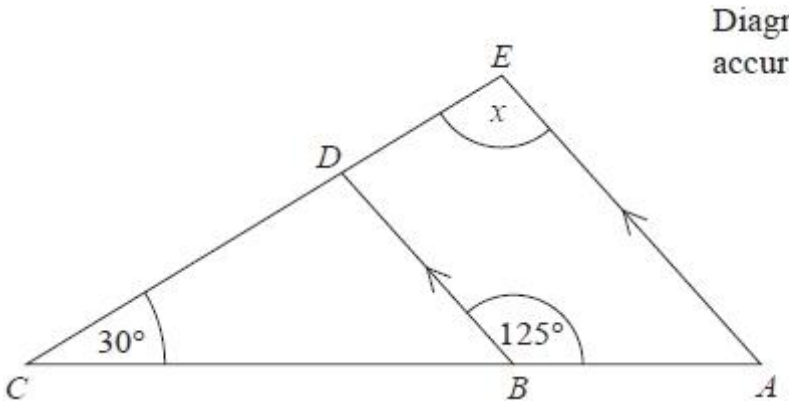
(c) Expand and simplify $(t + 2)(t + 4)$

.....

(2)

(Total for question = 4 marks)

Q8.



ABC and *EDC* are straight lines.
AE and *BD* are parallel.
Angle *ABD* = 125°
Angle *BCD* = 30°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for question = 4 marks)

Q9.

The diagram shows a circle inside a square.

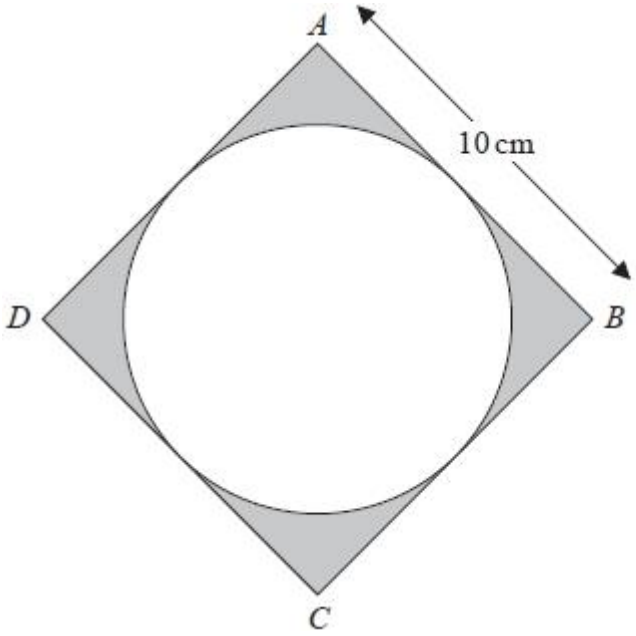


Diagram **NOT** accurately drawn

ABCD is a square of side 10 cm.
Each side of the square is a tangent to the circle.

Work out the total area of the shaded regions in terms of π.
Give your answer in its simplest form.

..... cm^2

(Total for question = 3 marks)

Q10.

Q, *R* and *S* are points on a grid.

Q is the point with coordinates (106, 103)
R is the point with coordinates (106, 105)
S is the point with coordinates (104, 105.5)

P and *A* are two other points on the grid such that

R is the midpoint of *PQ*
S is the midpoint of *PA*

Work out the coordinates of the point *A*.

(..... , ...)

(Total for question = 3 marks)

Q11.

*

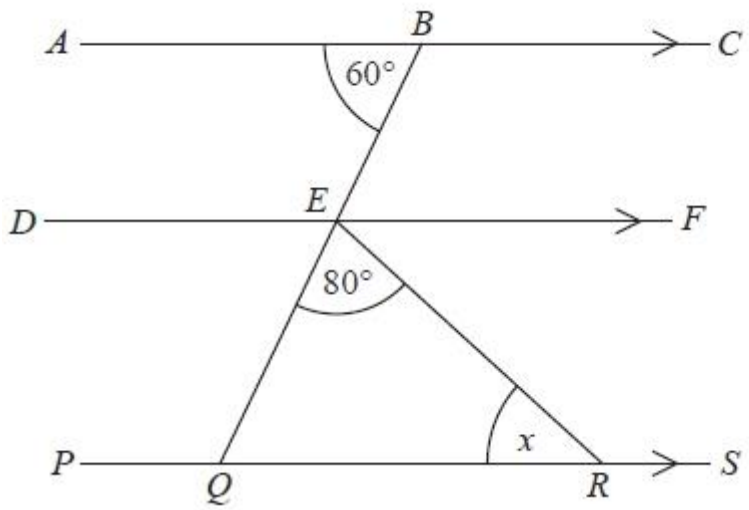


Diagram **NOT** accurately drawn

ABC, *DEF* and *PQRS* are parallel lines.
BEQ is a straight line.

Angle *ABE* = 60°
Angle *QER* = 80°

Work out the size of the angle marked *x*.
Give reasons for each stage of your working.

(Total for question = 4 marks)

Q12.

Here are the first five terms of an arithmetic sequence.

2 5 8 11 14

(a) Write down an expression, in terms of *n*, for the *n*th term of this sequence.

.....

(2)

(b) Is 299 a term of this sequence?

You must give a reason for your answer.

.....

.....

(2)

(c) Write down an expression, in terms of *n*, for the (*n* + 1)th term of this sequence.

.....

(1)

(Total for question = 5 marks)

Q13.

Claire is making a loaf of bread.
A loaf of bread loses 12% of its weight when it is baked.

Claire wants the baked loaf of bread to weigh 1.1 kg.

Work out the weight of the loaf of bread before it is baked.

..... kg

(Total for question = 3 marks)

Q14.

There are 15 children at a birthday party.
The mean age of the 15 children is 7 years.

9 of the 15 children are boys.
The mean age of the boys is 5 years.

Work out the mean age of the girls.

..... years

(Total for question = 3 marks)

Q15.

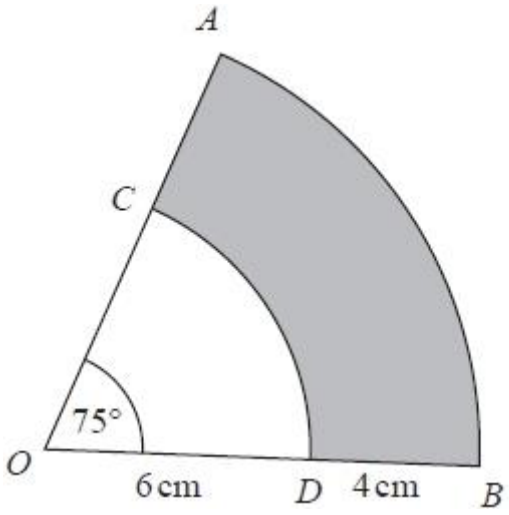


Diagram **NOT** accurately drawn

OAB is a sector of a circle, centre *O*.
OCD is a sector of a circle, centre *O*.
OCA and *ODB* are straight lines.

Angle *AOB* = 75°
OD = 6 cm
DB = 4 cm

Calculate the perimeter of the shaded region.
Give your answer correct to 3 significant figures.

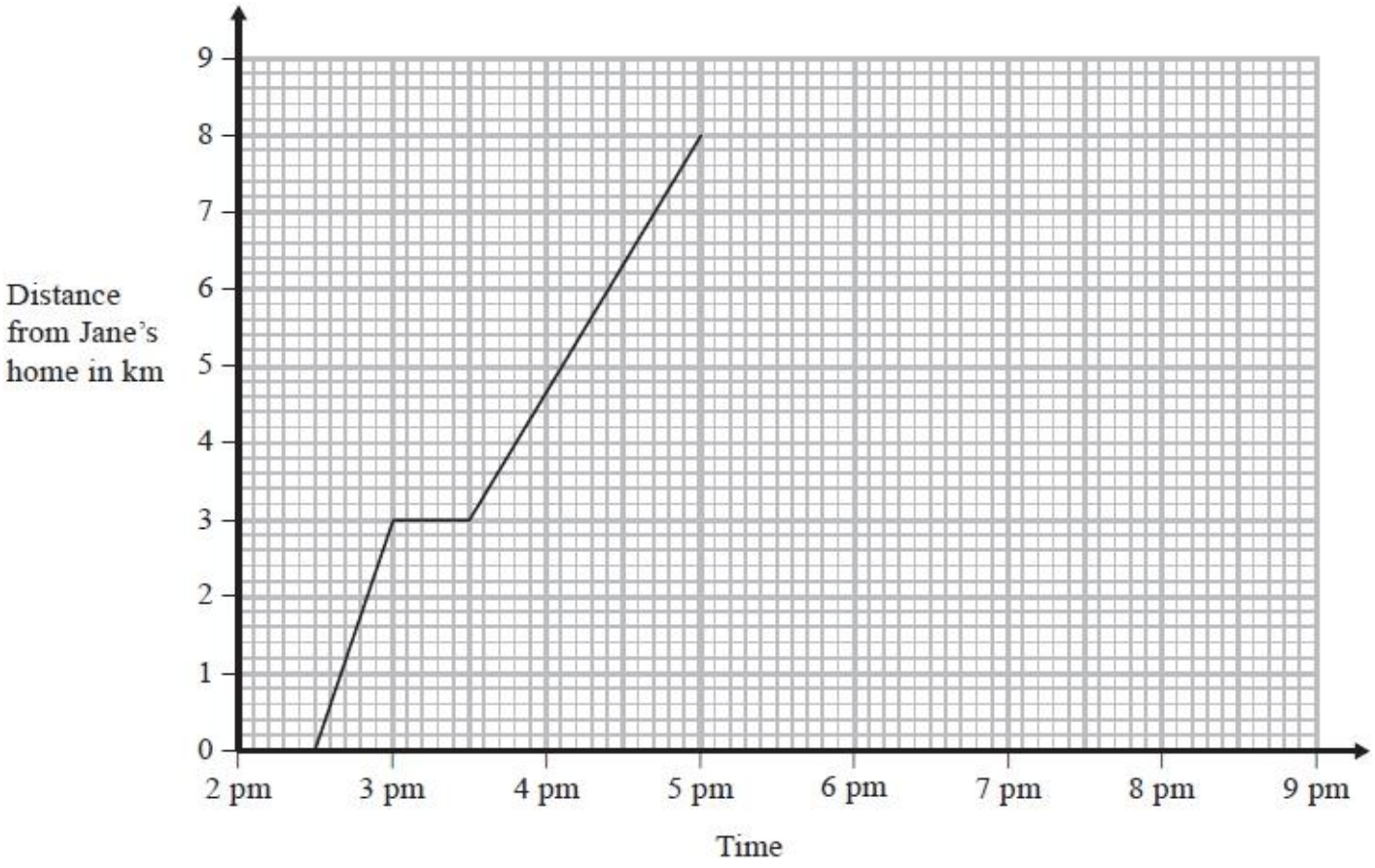
..... cm

(Total for question = 3 marks)

Q16.

Jane walked from her home to the ice rink.

The travel graph for Jane's journey to the ice rink is shown below.



On the way to the ice rink Jane stopped at her friend's house.

(a) How far is it from her friend's house to the ice rink?

..... km

(1)

Jane was at the ice rink for 1 hour 30 minutes.
She then walked home at a steady speed.
Jane took 2 hours to walk home.

(b) Complete the travel graph for this information.

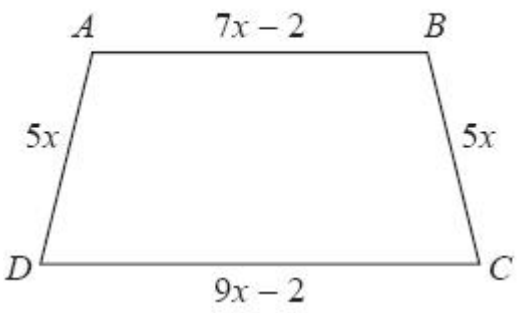
(2)

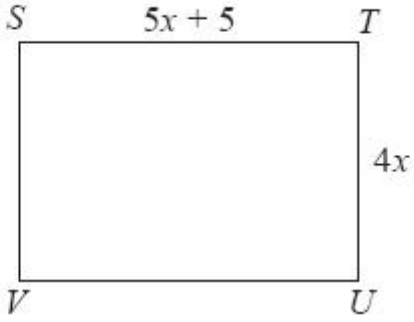
(Total for question = 3 marks)

Q17.

ABCD is a trapezium.
STUV is a rectangle.

Diagram **NOT** accurately drawn





All measurements are in centimetres.

The two shapes have the same perimeter.

Work out the length of *ST*.

..... cm

(Total for question = 5 marks)