

Loci and Construction

Question Paper 2

Level	OCR
Subject	Maths
Exam Board	GCSE (9-1)
Topic	Basic Geometry
Sub Topic	Loci and Construction
Grade Level	Grade 4
Booklet	Question Paper 2

Time Allowed: 53 minutes

Score: /44

Percentage: /100

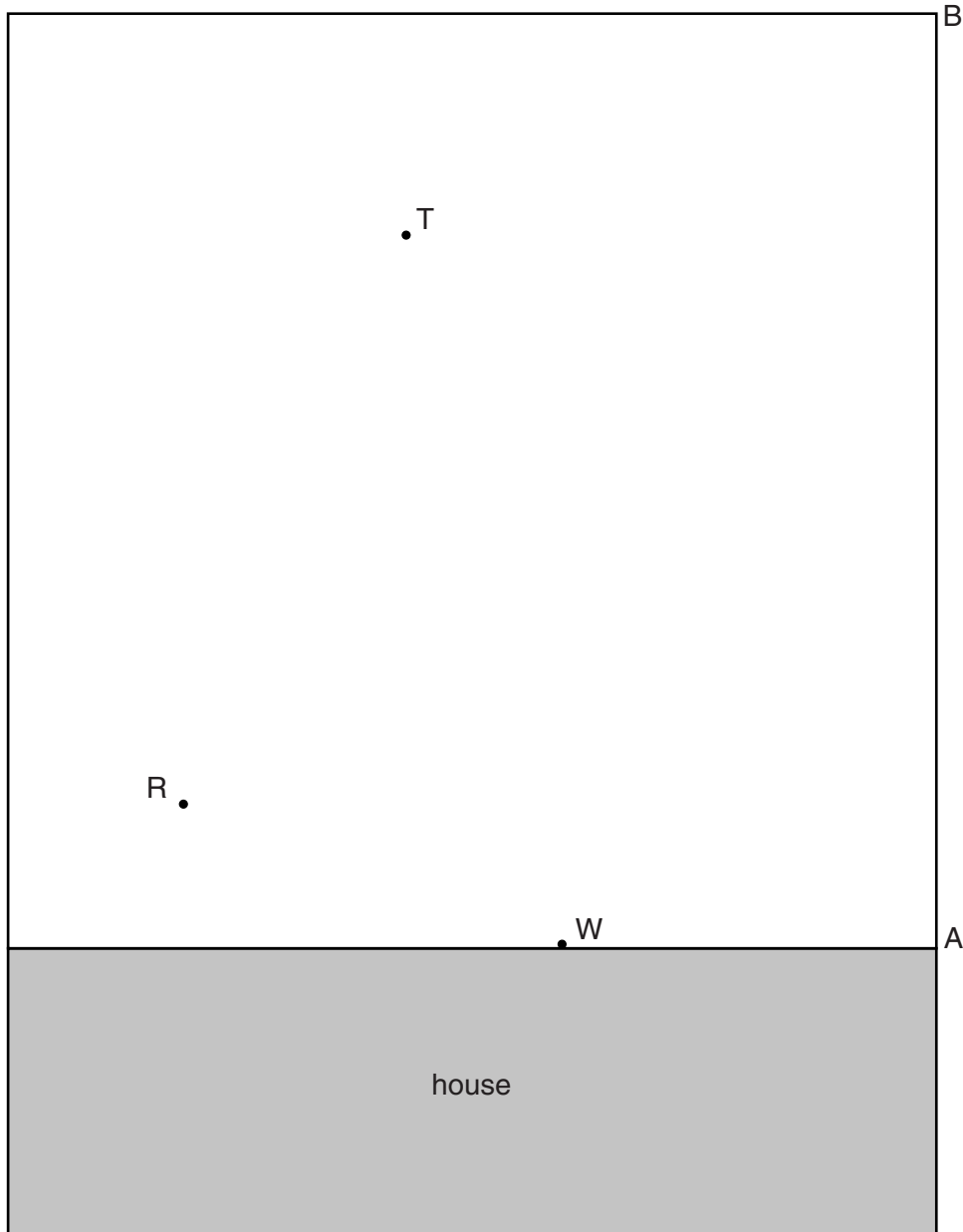
- 1 In this question, use a ruler and a pair of compasses.
Leave in all your construction lines.

The scale drawing shows Steve’s garden and part of his house.
Steve decides to put a pond in his garden.
He wants it to be

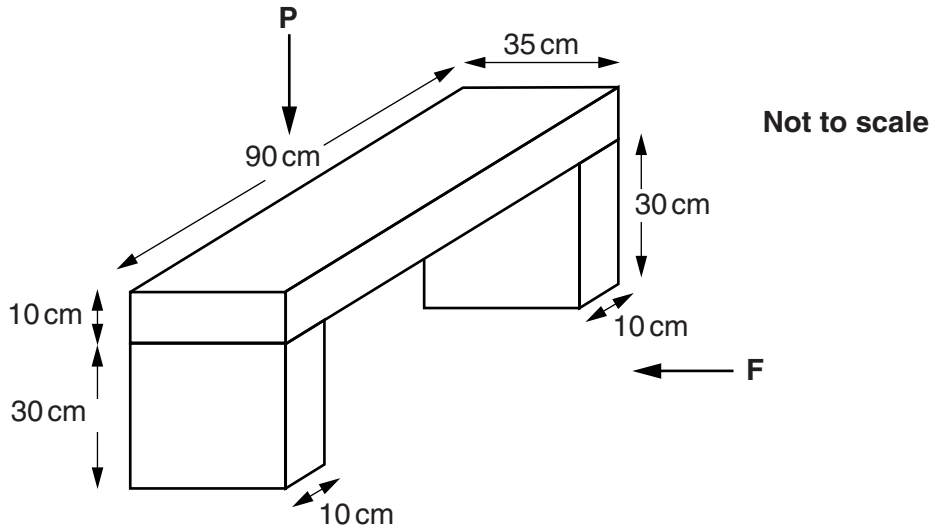
- at least 1.5 m from the rotary clothes dryer R
- at least 1.5 m from the hedge AB
- nearer to the watertap W than to the tree T.

Construct and shade the region where the pond can go.

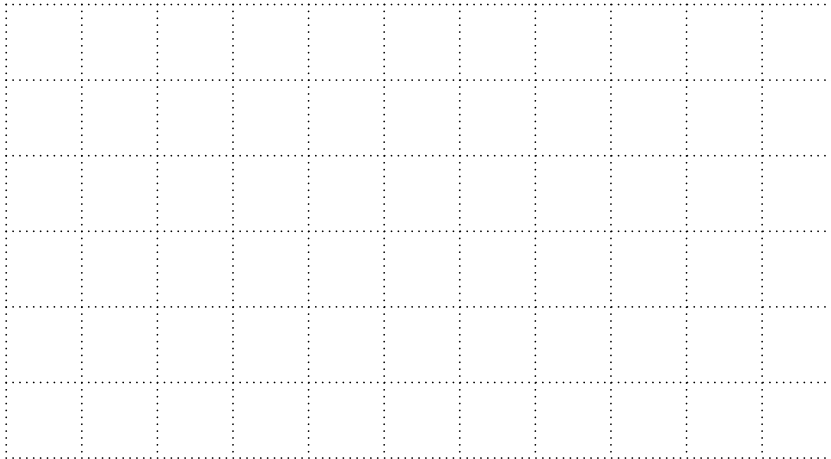
Scale: 2 cm represents 1 metre.



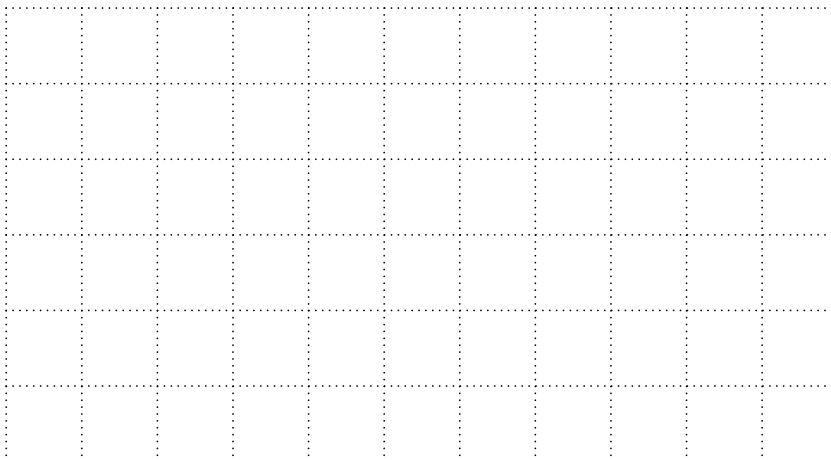
2 This garden bench is made from three cuboids.



(a) On the grids, draw the front elevation (view from F) and the plan (view from P). Use a scale of 1 cm to represent 10 cm.



Front elevation



Plan

- (b)** Work out the total volume of the garden bench.
Give the units of your answer.

(b) _____ [4]

- (c)** The weight of the bench is 75 kg, correct to the nearest kilogram.

What are the upper and lower bounds of this weight?

(c) Upper bound _____ kg

Lower bound _____ kg [2]

- 3 Use a ruler and a pair of compasses to answer this question.
Leave all your construction lines.

ABCD is a quadrilateral.
Sides AB and BC have been drawn below.



- (a) The other sides are AD and CD.
AD = 9.5 cm and CD = 4.8 cm.

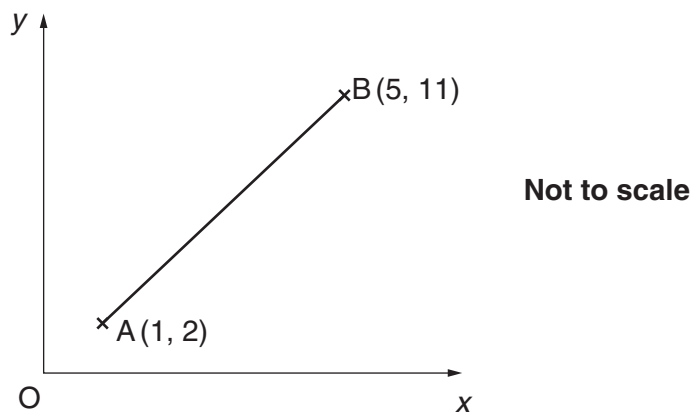
Complete the construction of quadrilateral ABCD.

[2]

- (b) Construct the bisector of angle B of the quadrilateral.

[2]

4



(a) Find the coordinates of the midpoint of AB.

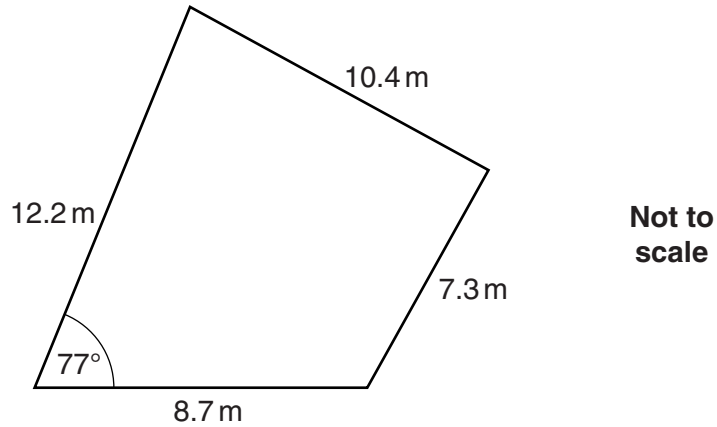
(a) (_____ , _____) [2]

(b) Calculate the length of AB.

(b) _____ [4]

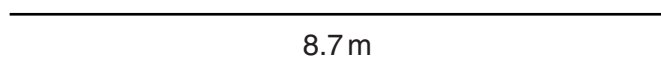
- 5 In this question use a ruler, a protractor and a pair of compasses.
Do not rub out your construction lines.

This diagram shows a sketch of Salome's garden.



Salome wants to make a scale drawing of her garden.
Her drawing has been started below.

Complete her scale drawing.
Use the scale: 1 cm represents 1 metre.



- 6 This is a scale drawing showing the position of two airports, A and B.
The scale is 1 cm represents 50 km.



Scale: 1 cm represents 50 km

An aircraft flies from airport A to airport C.
C is 360 km from A on a bearing of 247° .

(a) On the scale drawing, construct the position of airport C. [2]

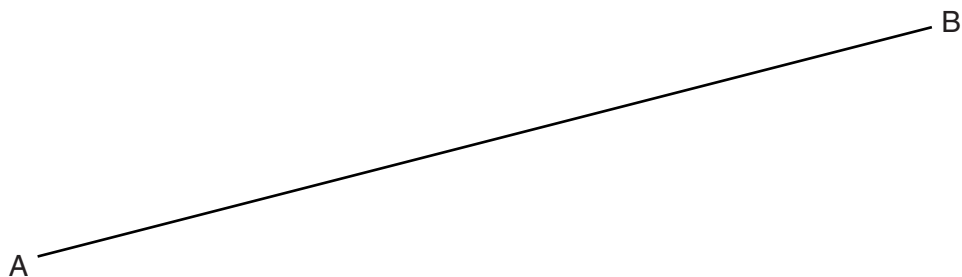
(b) Find the actual distance of airport C from airport B.

(b) _____ km [2]

- 7 Use a ruler and a pair of compasses in this question.
Do not rub out your construction lines.

Construct the perpendicular from the point P to the line AB.

P •



[2]

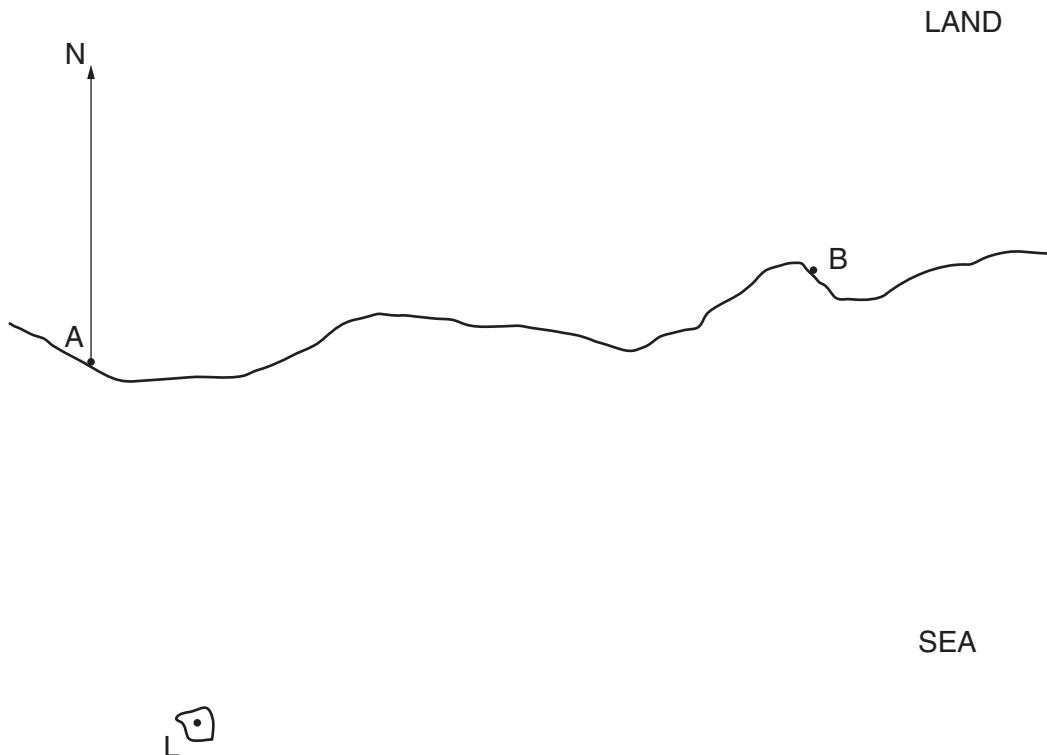
- 8 In this question, use a pair of compasses, a ruler and a protractor.
Leave in all your construction lines.

The scale drawing shows a coastline with two ports, A and B, and a lighthouse, L.
The scale is 2 cm represents 1 km.
A boat travels on a bearing of 128° from port A.

A plane flies out to sea so that its distance from A is always the same as its distance from B.
At one point, the plane is directly over the boat.

At this point, what is the distance of the boat from the lighthouse, L?

Scale: 2 cm represents 1 km

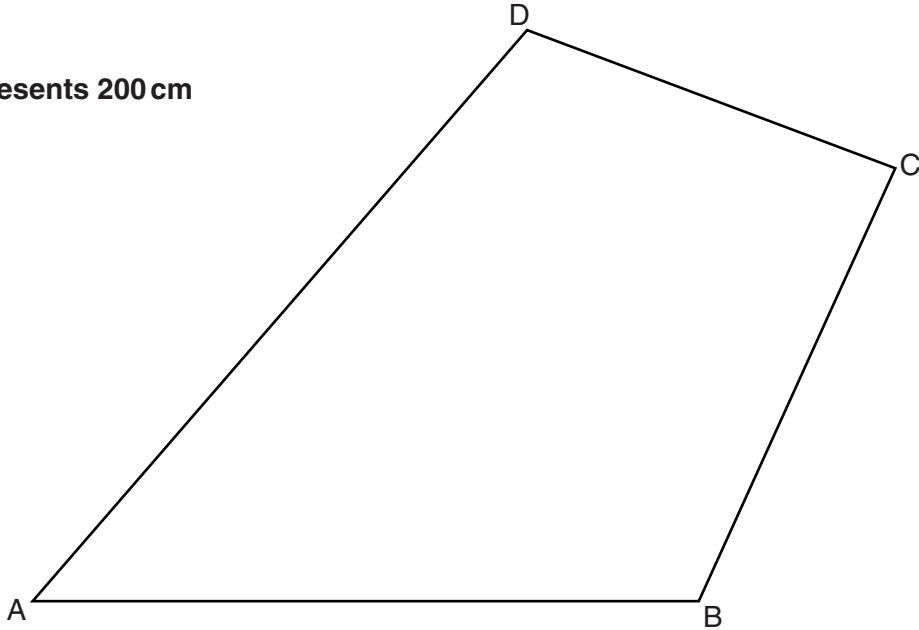


_____ km [5]

- 9 In this question, use a ruler and a pair of compasses.
Leave in your construction lines.

The scale drawing ABCD shows Neil's garden.
AB is the wall of Neil's house.

Scale: 1 cm represents 200 cm



Construct the perpendicular from D to AB.
Hence find the shortest actual distance, in metres, from corner D of the garden to the house.

_____ m [4]