Name: _____

GCSE (1 – 9)

Loci and Construction

Instructions

• Use **black** ink or ball-point pen.
• Answer all Questions.
• Answer the Questions in the spaces provided
– *there may be more space than you need.*
• Diagrams are **NOT** accurately drawn, unless otherwise indicated.
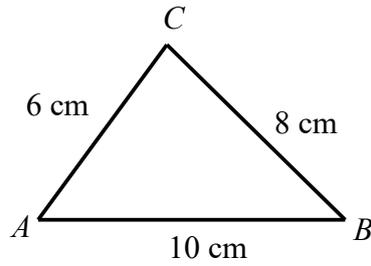• You must **show all your working out.**

Information

• 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.
• Try to answer every Question.
• Check your answers if you have time at the end

1   *ABC* is a triangle.

AB = 10 cm
BC = 8 cm
AC = 6 cm

Use ruler and compasses to construct an accurate drawing of triangle *ABC*.

You must show all your construction lines.

(Total for Question 1 is 3 marks)

2   A stadium is going to be built.
It must be no more than 10 km from town A and no more than 8 km from town B.

1 cm represents 2 km

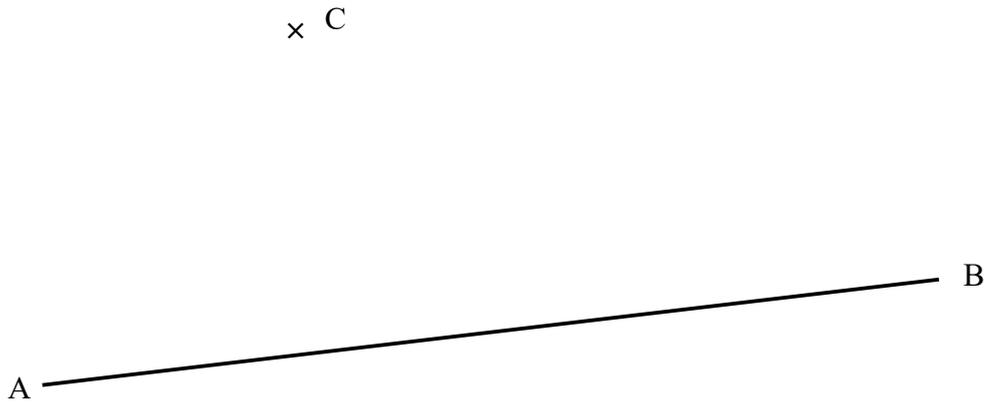Shade the region on the diagram where the stadium can be built.

× Town A

×
Town B

(Total for Question 2 is 2 marks)

3   In the space below, use a ruler and compasses to construct an equilateral triangle with side length 6 cm.
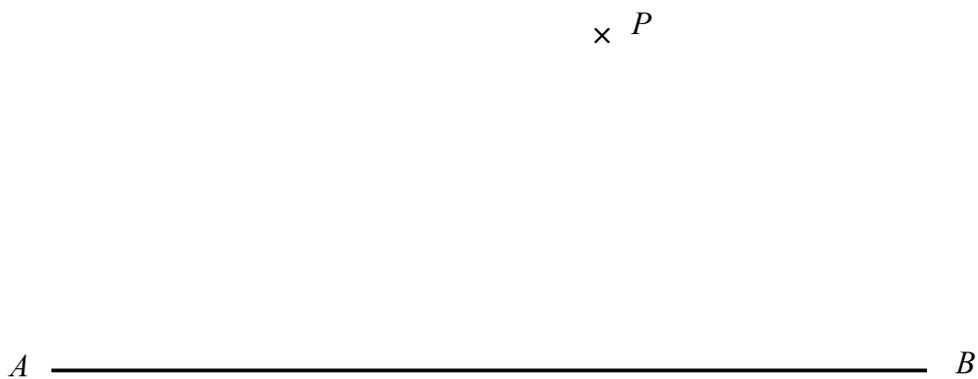
You must show all your construction lines.

(Total for Question 3 is 3 marks)

4   Use ruler and compasses to construct the perpendicular from point C to the line AB.
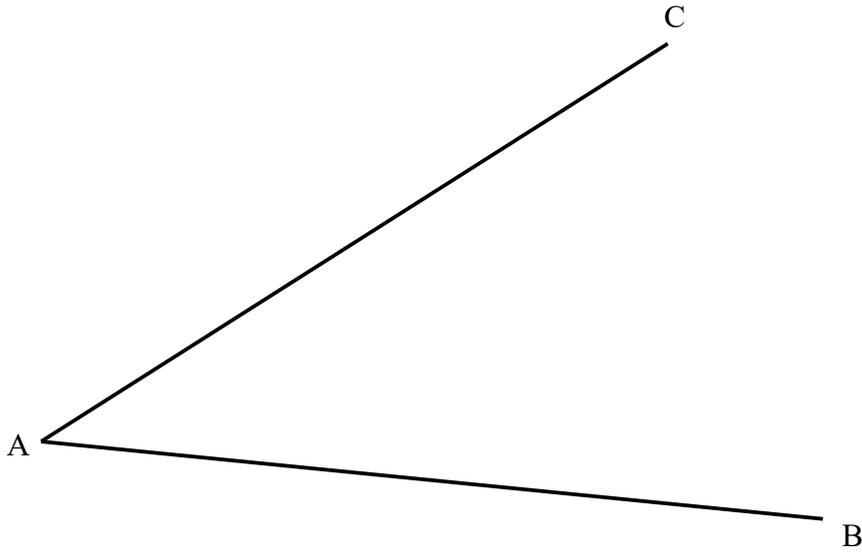You must show all your construction lines.

× C

B

A

(Total for Question 4 is 2 marks)

5   Use ruler and compasses to construct the perpendicular from point *P* to the line *AB*.
You must show all your construction lines.

× *P*
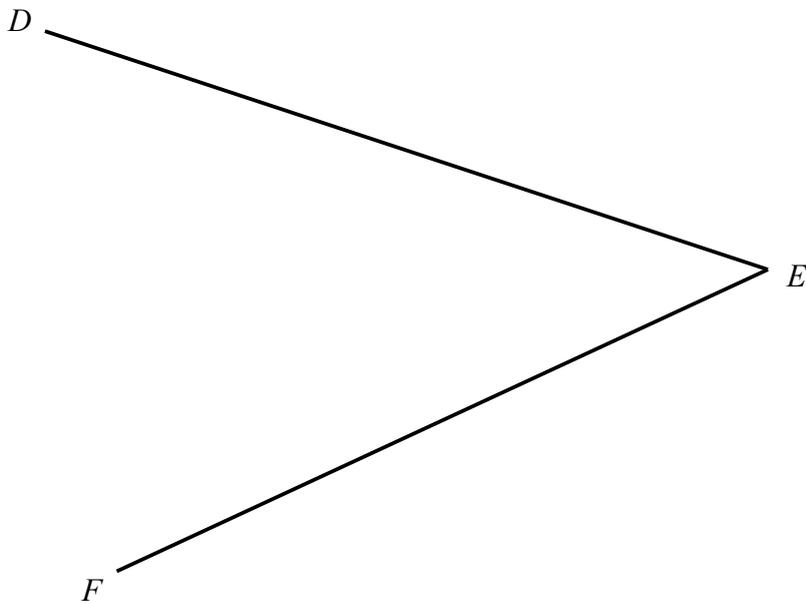
A ——————————————————— *B*

(Total for Question 5 is 2 marks)

6   Use ruler and compasses to construct the bisector of angle *BAC*.
You must show all your construction lines.

C

A

B

(Total for Question 6 is 2 marks)

7   Use ruler and compasses to construct the bisector of angle *DEF*.
You must show all your construction lines.

D

E

F

(Total for Question 7 is 2 marks)

8 Use ruler and compasses to construct a perpendicular bisector of the line *AB*.
You must show all your construction lines.

A ———————————————————————— *B*

(Total for Question 8 is 2 marks)

9 In the space below, use a ruler and compasses to construct a 30° angle.
You must show all your construction lines.

(Total for Question 9 is 4 marks)

10   Here is a scale drawing of a garden.
The scale is 1 cm to 2 m

A tree is going to be planted.
The tree must be more than 4 m from the patio.
The tree must be more than 6 m from the pond.

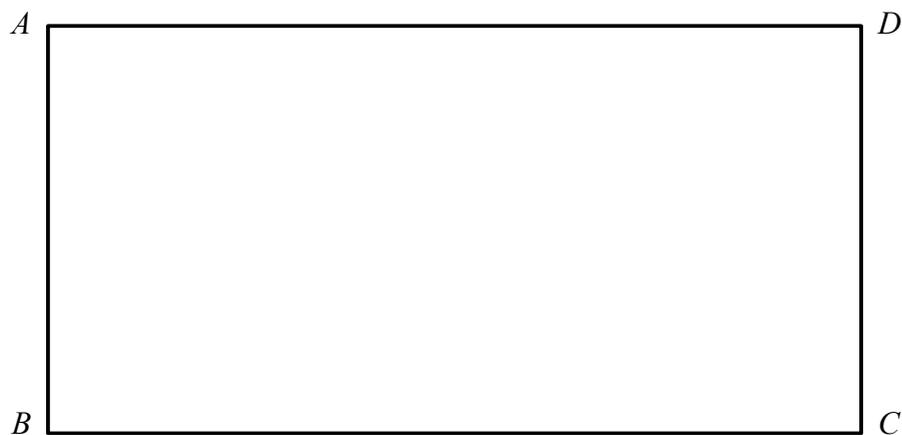Shade the region where the tree can be planted.

(Total for Question 10 is 2 marks)

11   Here is a scale drawing of a room.
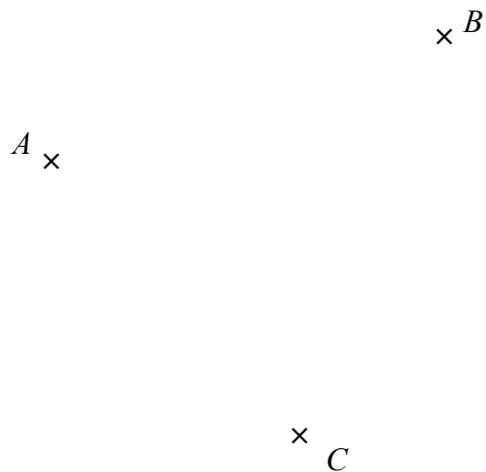The scale is 1 cm to 2 m.

A chair is going to be placed in the room.
The chair must be closer to *AB* than *BC*.
The chair must be less than 14 m from *D*.

Shade the region where the chair can be placed.

(Total for Question 11 is 2 marks)

12   *A*, *B* and *C* are three points on a map.

1cm represents 100 metres.

$\times$ *B*

A $\times$

$\times$ *C*

Point *P* is 300 metres from *A*.
Point *P* is equidistant from *B* and *C*.

On the map, show the possible positions of *P*.

(Total for Question 12 is 3 marks)