LOCI AND CONSTRUCTION – PRACTICE QUESTIONS
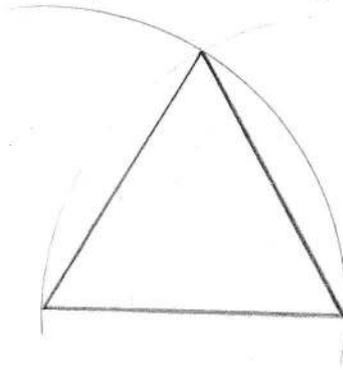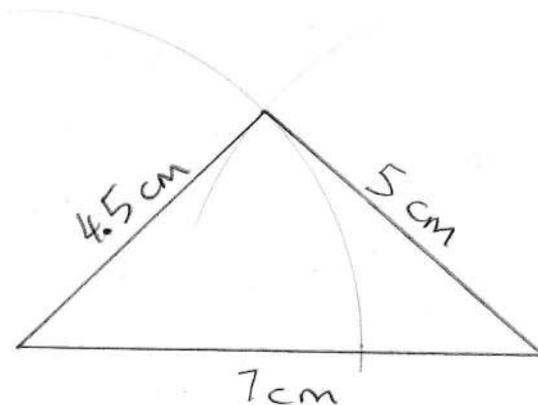
1.

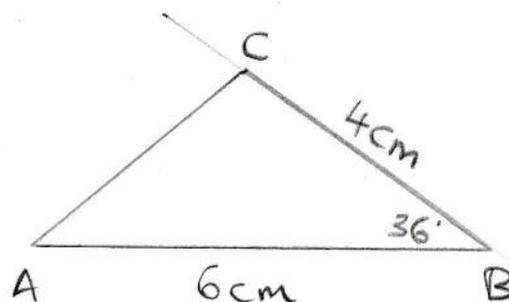In the space below, construct an equilateral triangle of side length 4 cm.

2.

In the space below, construct a triangle with side lengths 5 cm, 4.5 cm and 7 cm.
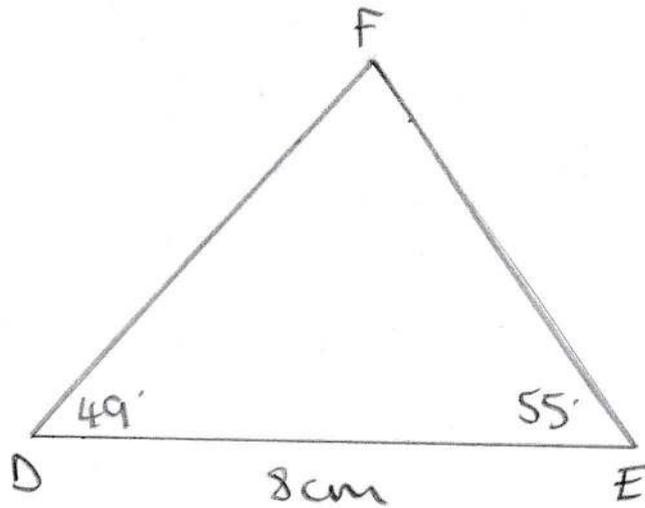

3.

In the space below, construct triangle ABC such that AB = 6 cm, angle ABC = 36° and BC = 4 cm.

4.
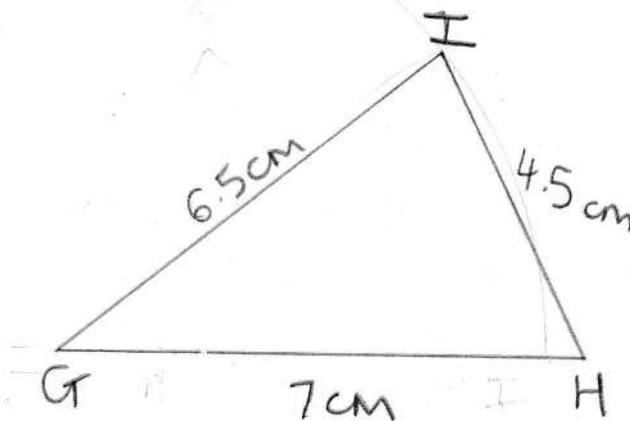
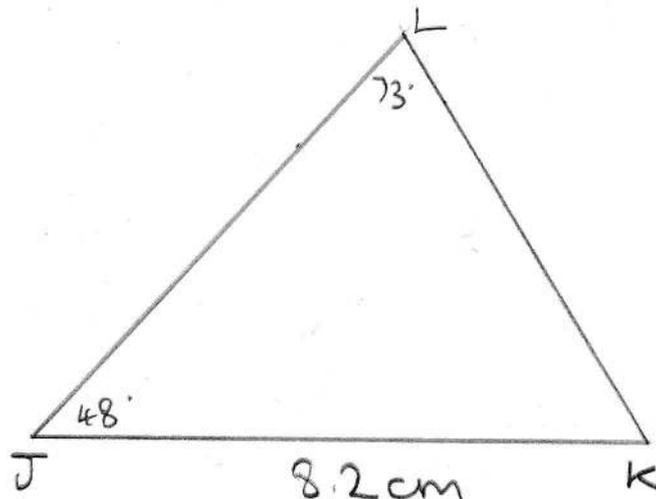In the space below, construct triangle DEF such that DE = 8 cm, angle DEF = 55° and angle FDE = 49°.

F

49°

55°

D

8 cm

E

5.

In the space below, construct triangle GHI such that HI = 4.5 cm, GI = 6.5 cm and GH = 7 cm.
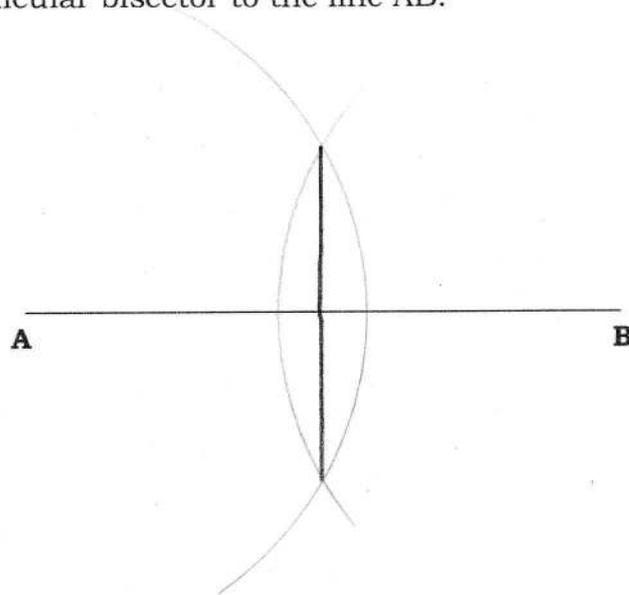
I

6.5 cm

4.5 cm

G

7 cm

H

6.
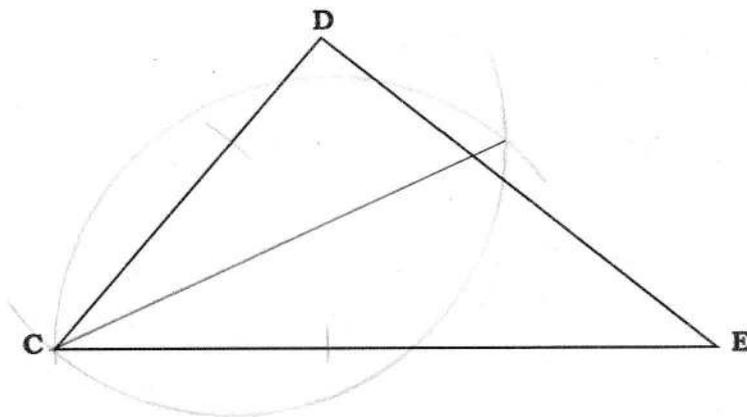
In the space below, construct triangle JKL such that JK = 8.2 cm, angle LJK = 48° and angle KLJ = 73°. JKL = 180 - 73 - 48 = 59°

L

73°

48°

J

8.2 cm

K

7.

Construct a perpendicular bisector to the line AB.
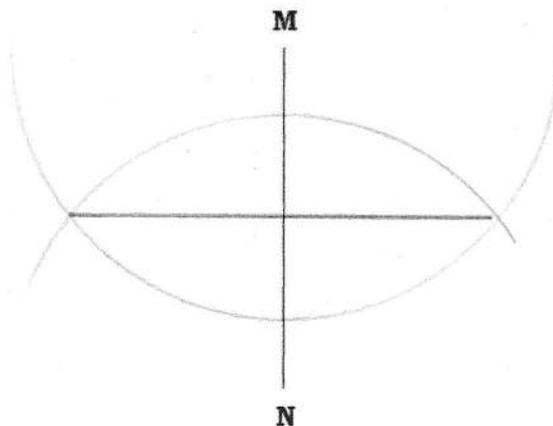
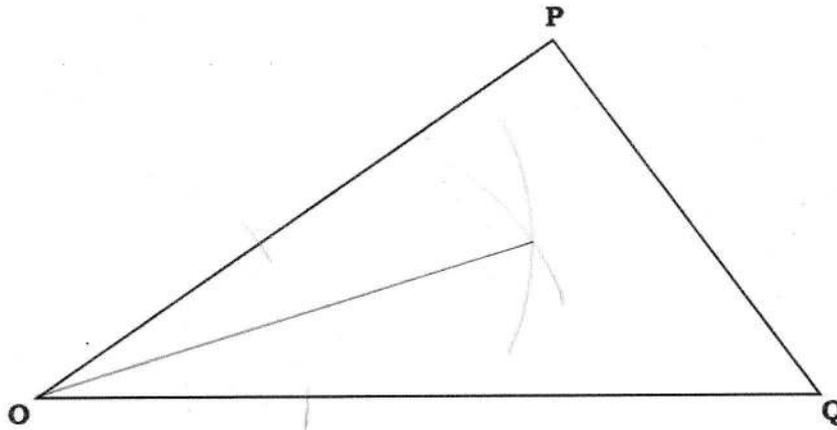A   B

8.

Construct an angle bisector of the angle ECD.
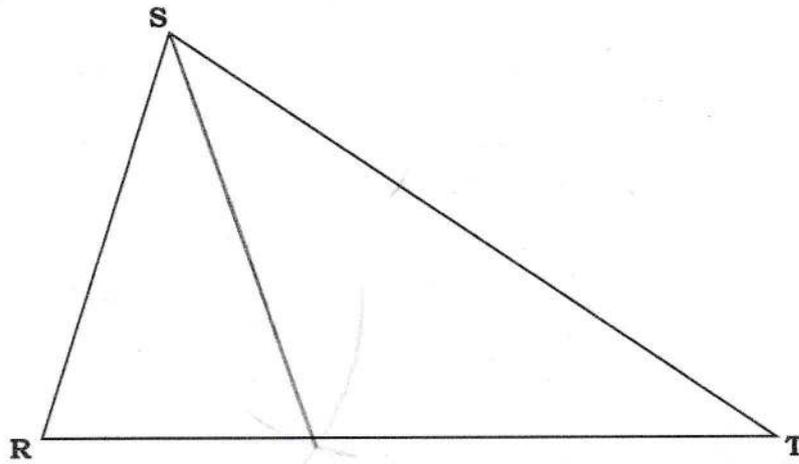
D

C   E
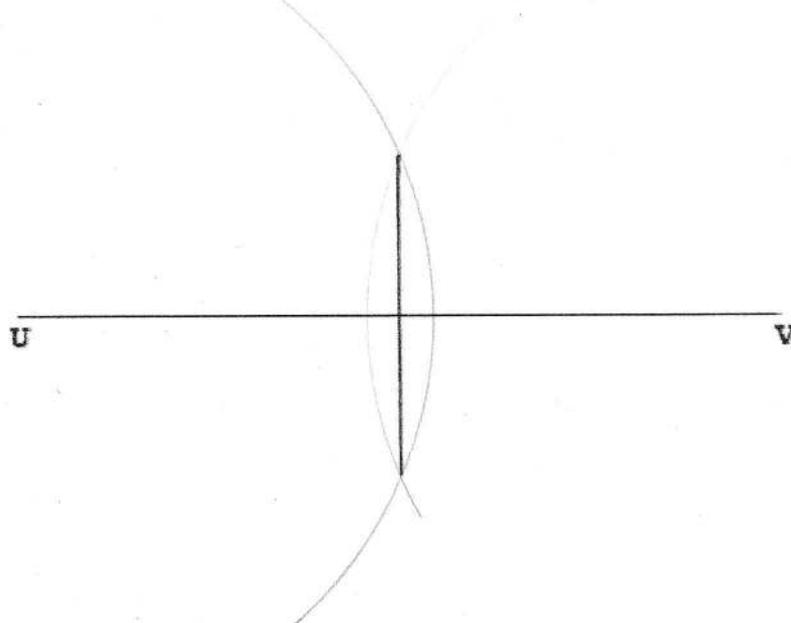
9.

Construct a perpendicular bisector to the line MN.

M

N

10.

Construct an angle bisector of the angle POQ.
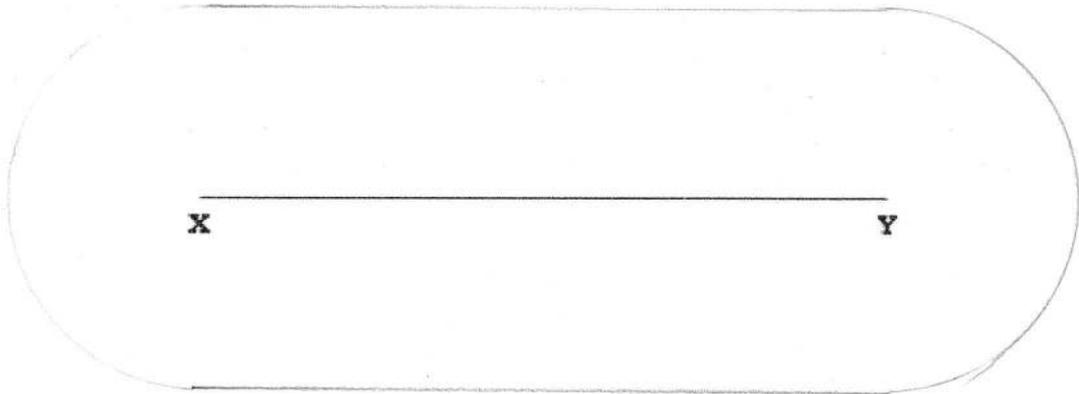
P

O

Q

11.

Construct an angle bisector of the angle RST.

S

R

T

12.

Construct a perpendicular bisector to the line UV.

U

V

13.

Construct a locus of points 2.5 centimetres from the line XY.

X ——————————————————————————— Y
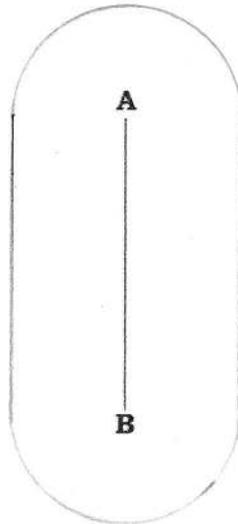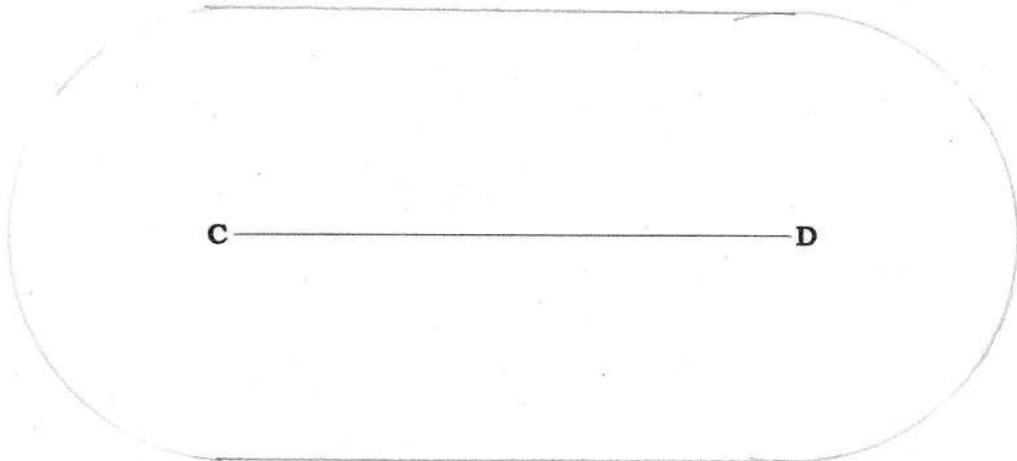
14.

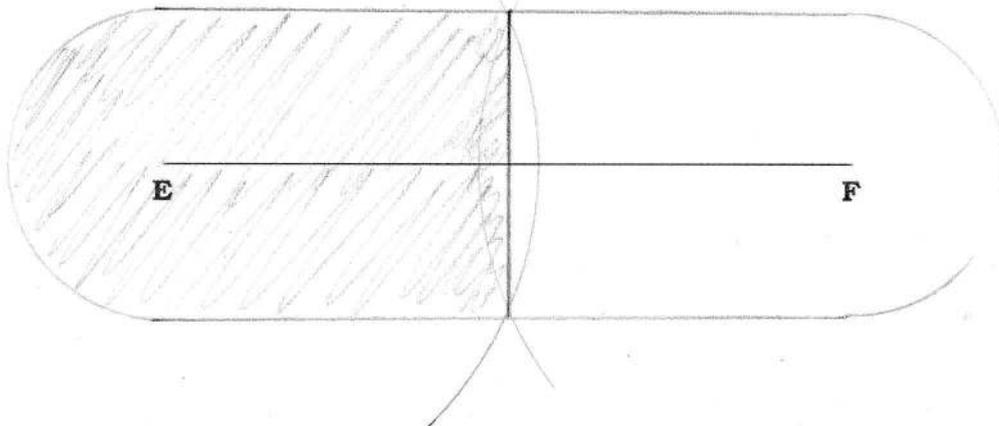Construct a locus of points 1.5 centimetres from the line AB.

A

B

15.

Construct a locus of points 3 centimetres from the line CD.
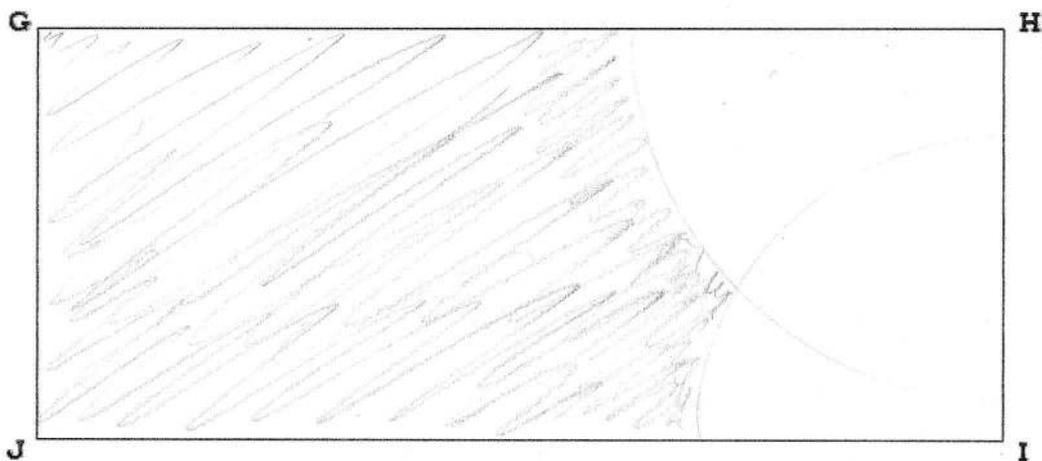
C ——————————————— D

16.

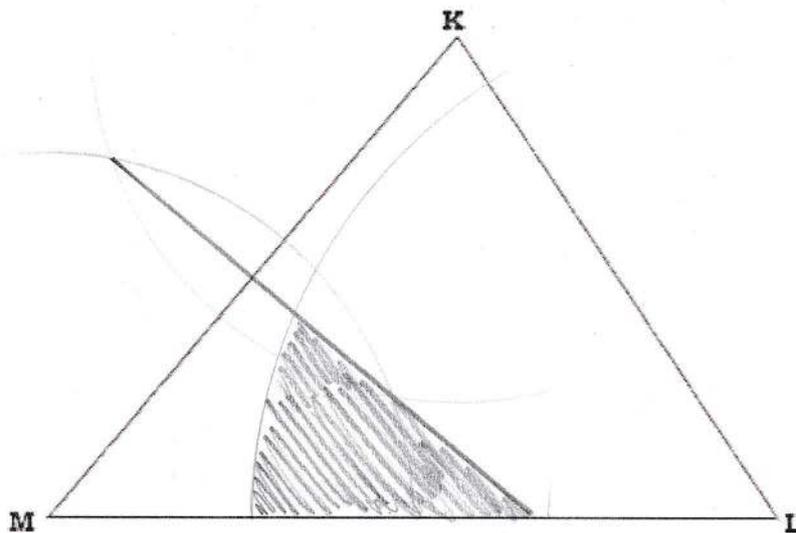Shade in the area within 2 centimetres of the line EF, and closer to E than F.

17.

Shade in the area **within** the rectangle GHIJ which is more than 4 centimetres from point I and more than 5 centimetres from point H.
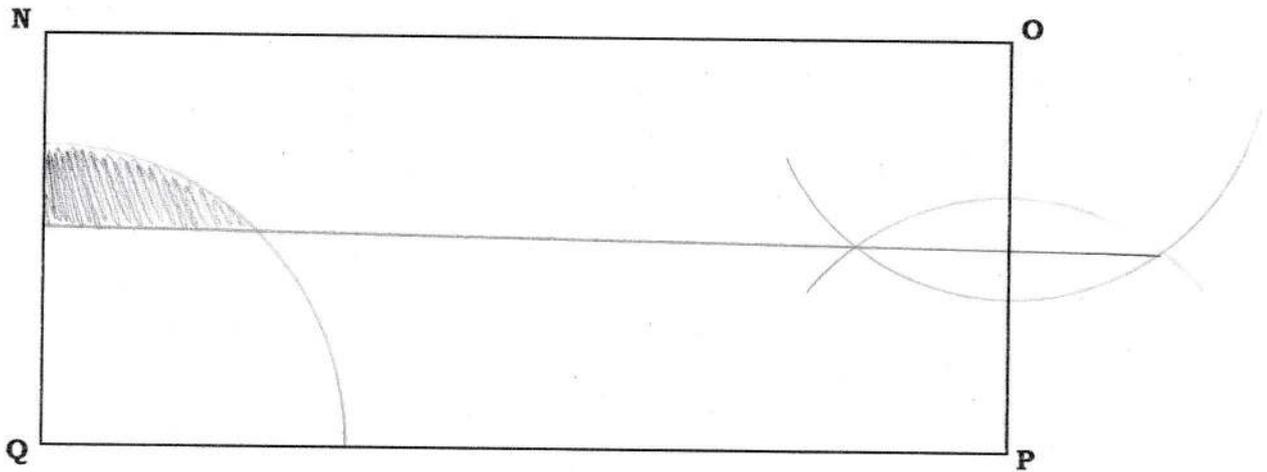
18.

Shade in the region within the triangle KLM that is within $\frac{7}{8}$ centimetres of L and closer to M than K.
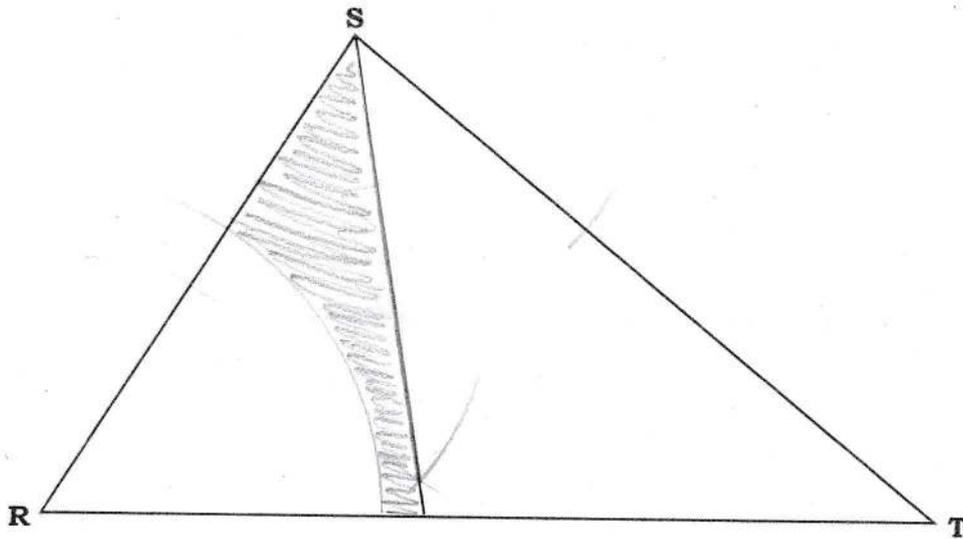
19.

Shade in the region within the rectangle NOPQ which is closer to O than P and within 4 centimetres of Q.
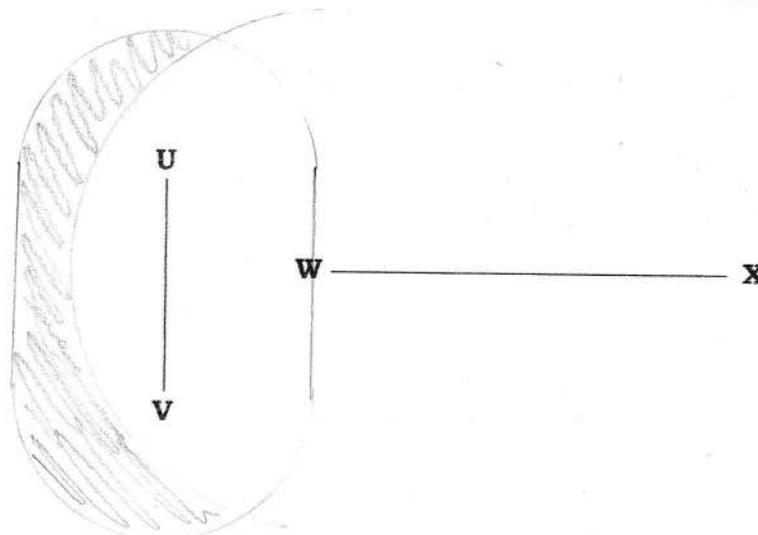

20.

Shade in the region within the triangle RST which is closer to RS than ST and further than 4.5 centimetres from R.
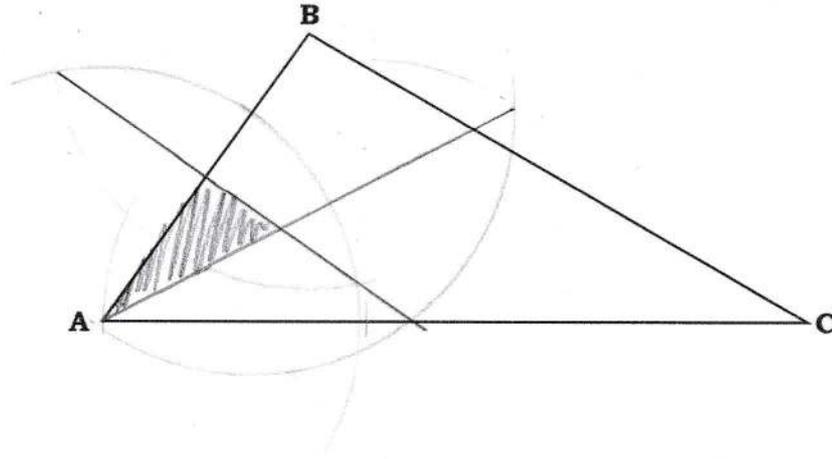

21.

Shade in the region that is within 2.⬛ centimetres of UV and further than 3.5 centimetres from WX.
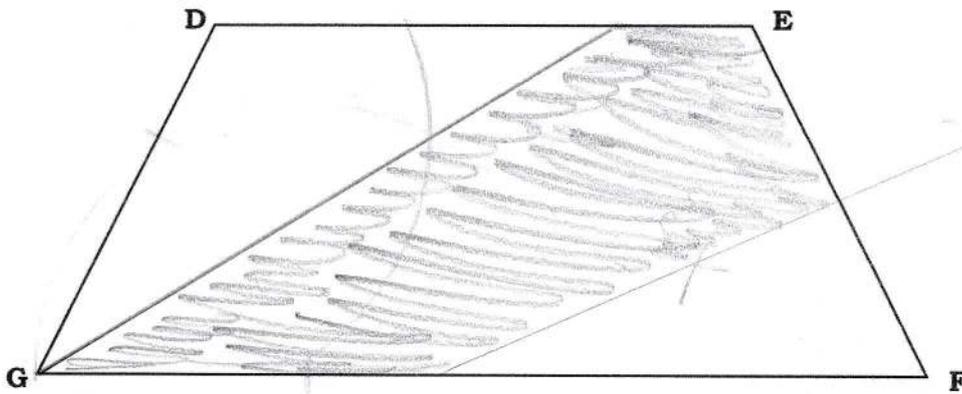
22.

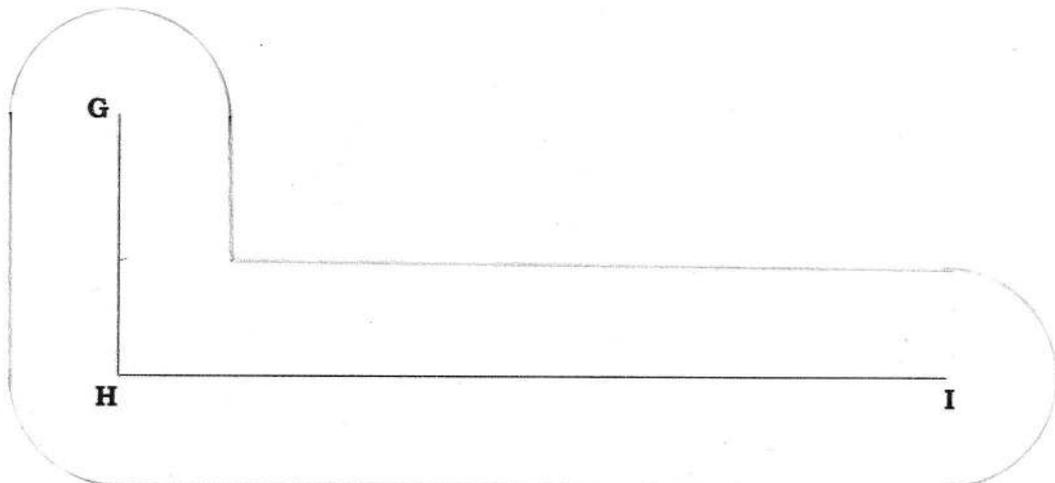Shade in the region within the triangle ABC which is closer to AB than AC and closer to A than B.

23.

Shade the region within the trapezium DEFG which is closer to DG than GF and closer to E than F.

24.

Construct a locus of points 1.5 centimetres from GHI.

25.

Below is a map of an island.

The island has two main cities – Canton and Deenery.
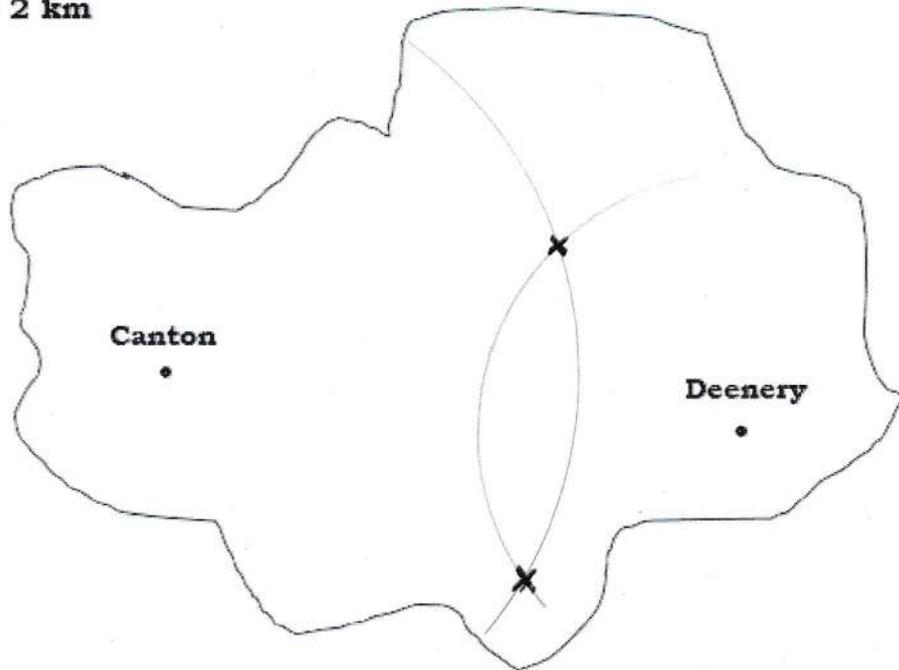
Eric lives on the island.

He lives exactly 11 kilometres from Canton and exactly 7 kilometres from Deenery.

Mark with a cross the points on the island where Eric could live.

Scale: 1 cm = 2 km

11km=5.5cm

7km=3.5cm

Canton

Deenery

26.

A museum has two alarms.

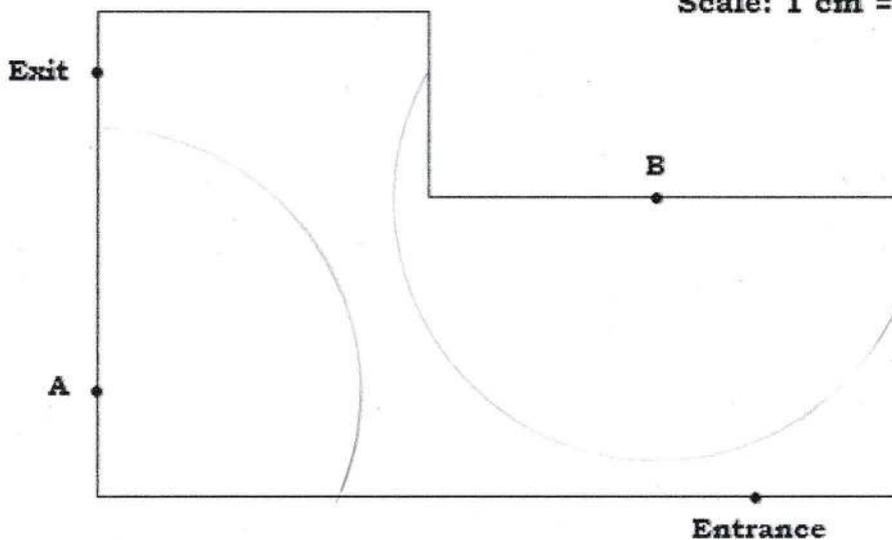The alarms will go off if something comes within 7 metres of them.

Below is a plan of the museum.

The two alarms are labelled A and B.

Is it possible to walk from the entrance to the exit without setting off an alarm?

Yes, it is possible.

Scale: 1 cm = 2 m
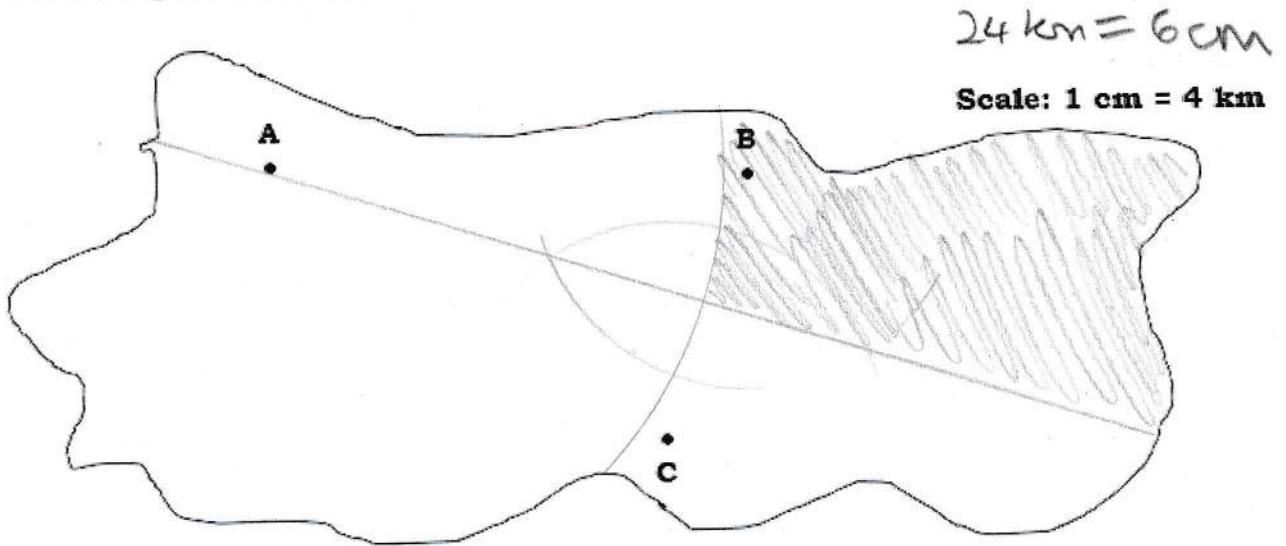
7m=3.5cm

Exit

B

A

Entrance

27.
Below is a map of an island.
There is treasure buried somewhere on the island.
The treasure is further than 24 kilometres from A, and closer to B than to C.

Shade the region where the treasure could be buried.

24 km = 6 cm

Scale: 1 cm = 4 km

28.
The diagram below shows Fran's garden. There is an apple tree (A) and a pear tree (P) in the garden.

Fran's dog, Stanley, has buried his bone in the garden.
The bone was buried further than 24 metres from the house.
It was buried between 14 and 22 metres from the pear tree.
The bone was buried closer to the pear tree than the apple tree.

24 m = 6 cm
14 m = 3.5 cm
22 m = 5.5 cm

Shade the region where the bone could be buried.

Scale: 1 cm = 4 m