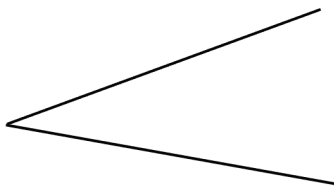## Foundation Check In - 8.02 Ruler and compass constructions

1. Construct the perpendicular bisector of the line shown below.

2. Construct the angle bisector on the diagram shown below.

3. Construct the perpendicular from the point to the line shown below.

4. Construct the midpoint of the line below.

5. Construct the locus of points 2 cm from the point below.

6. A hamster is in a rectangular cage. The cage is placed on a mat so that every point of the edge of the cage is 50 cm from the edge of the mat. Explain how you know that the mat is not a rectangle.

7. Explain what is meant by the term equidistant from 2 points.

8. Tom says "To construct an equilateral triangle I need to draw 3 arcs because a triangle has 3 sides". Is this statement true or false? Explain your answer.

9. Construct an angle of 330˚.

10. Jim works in town A and Elsie works in town B. Jim and Elsie want to live together within 20 km of town A and within 12 km of town B, but at least 2 km from the noisy railway line. Locate the region where Jim and Elsie could live.
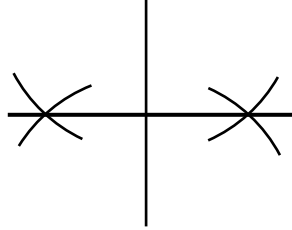
Scale: 1 cm to 4 km

A
●

●B

railway line
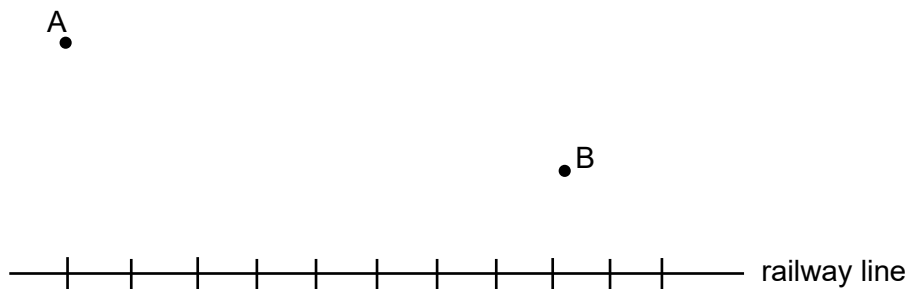
Extension

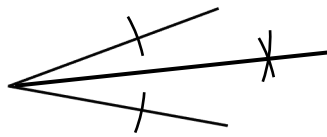Construct rhombus KLMN in which KL = 4 cm and ∠KLM = 60˚.
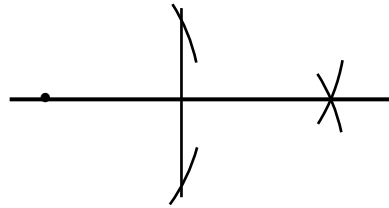
Answers

1. Perpendicular bisector with 2 correct pairs of arcs.
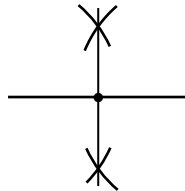
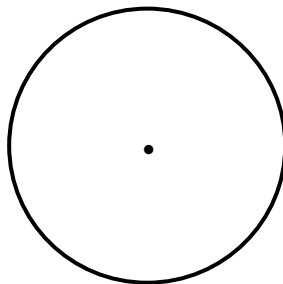2. Bisector with correct arcs.

3. Perpendicular correctly constructed with arcs.

4. Correct midpoint with arcs.

5. Circle radius 2 cm from the point.

6. The corners of the mat must be curved in order for the edge of the cage to always be 50 cm from the edge of the mat. Therefore the mat is not rectangular.

7. Equal distance from both points.

8. False, only 2 arcs are necessary (e.g. Draw a line. Set the compass to the length of the line. Draw an arc from each end of the line. Join the intersection of the arcs to the ends of the line).
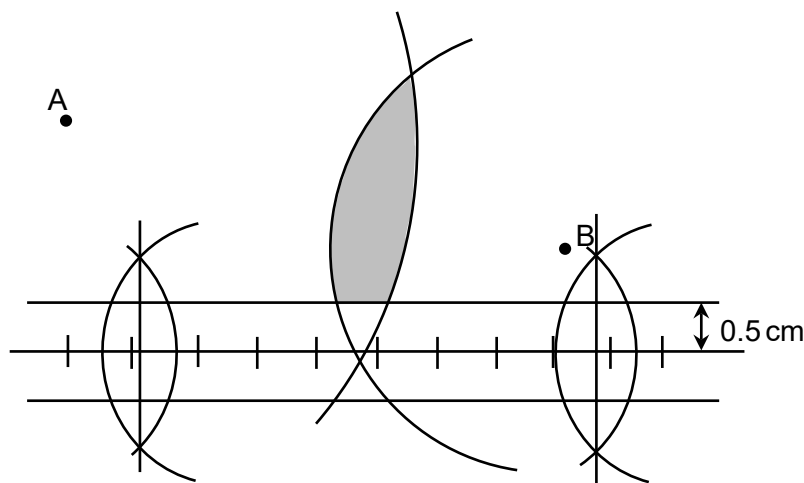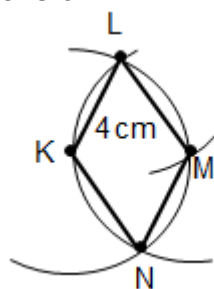
9. Diagram showing 60 degree construction and then angle bisector and correct angle marked.

330°
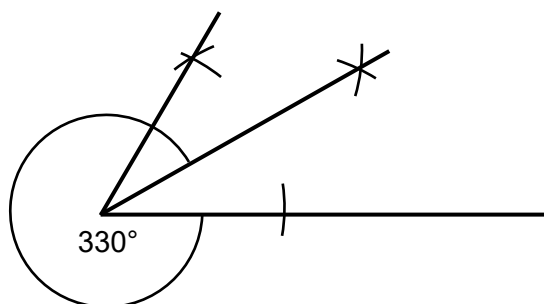
10. 2 arcs of 3 cm and 5 cm and two lines 0.5 cm above and below railway line with correct area shaded.

A

B

0.5 cm

Extension

L

4 cm

K

M

N

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GCSE (9–1) MATHEMATICS

Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Construct the perpendicular bisector of a line segment			
AO1	2	Construct the bisector of an angle formed from two lines			
AO1	3	Construct the perpendicular from a point to a line			
AO1	4	Construct the midpoint of a line segment			
AO1	5	Identify the loci of points			
AO2	6	Identify the loci of points from a real life problem			
AO2	7	Know the term equidistant			
AO2	8	Apply knowledge of ruler and compass constructions in the construction of figures			
AO3	9	Apply ruler and compass constructions to construct a given angle			
AO3	10	Apply ruler and compass constructions to identify the loci of points from a real life problem			