

GCSE MATHS

Constructions and loci

Answers

- Q1** The perpendicular line through the midpoint of AB , with equal-radius arcs visible.
- Q2** 5 cm.
- Q3** A line through the midpoint of AB , perpendicular to AB ; equal-radius arcs cross above and below.
- Q4** Three marks divide AB into four equal lengths. Each mark is located by a perpendicular-bisector construction.
- Q5** The complete perpendicular bisector of AB , with construction arcs.
- Q6** $PA = PB$ and $QA = QB$ because the radii are equal. Both P and Q lie on the perpendicular bisector of AB , so the line through them is that bisector.
- Q7** A ray from O midway between OA and OB , with equal-radius construction arcs.
- Q8** OP lies halfway between OA and the 45° bisector of angle AOB . Both angle-bisector constructions should be visible.
- Q9** A line through P meeting AB at 90° , constructed using equal distances.
- Q10** A line through P at 90° to AB , with arcs from equally spaced points on AB .
- Q11** The top vertex is where circles of radius AB centred at A and B meet; all three sides equal AB .
- Q12** A ray at 30° to OA , obtained by constructing a 60° angle and bisecting it.
- Q13** A circle with centre O and radius 3 cm.
- Q14** Two parallel lines, one 2 cm on each side of l .
- Q15** Points can be 2 cm away on either side of the line, measured perpendicularly.
- Q16** The internal angle bisector, with construction arcs.
- Q17** 2 cm.
- Q18** The circle of radius 2 cm centred at O and everything inside it.
- Q19** Two intersections of the circles of radius 3 cm centred at A and B .
- Q20** None: two circles of radius 3 cm cannot meet when their centres are 10 cm apart.
- Q21** One point: the midpoint of AB , where the two circles touch.
- Q22** The region inside the circle of radius 2 cm centred at A , on the same side of the perpendicular bisector of AB as A . Neither boundary is included.
- Q23** A ring centred at O between radii 1 cm and 2 cm, including both circles.
- Q24** The two intersections of the perpendicular bisector of AB with the circle of radius 5 cm centred at A .