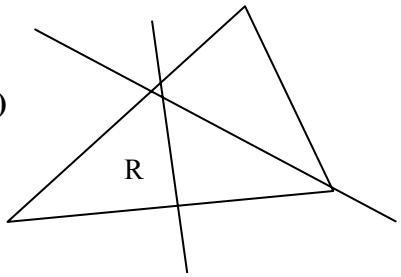
Scale drawing / Loci / symmetry 1 Answers

1)	0.54	**2**	**M1** for $\frac{2.7 \times 20000}{100000}$ oe **or SC1** for figs 54 in answer

2)	**(a) (i)**		**2**	**B1** correct line **B1** 2 sets of correct arcs
	(ii)		**2**	**B1** correct line **B1** two sets of correct arcs
	(b)		**1**	correct region, shaded or shown by the letter R

3)	**(a)**	correct triangle with arcs	**2**	**B1** without arcs or **SC1** correct mirror image with arcs
	(b)	68° to 71°	**1ft**	
	(c) (i)	perpendicular bisector with 2 pairs of arcs	**2**	**SC1** if accurate without arcs or accurate arcs with no line or accurate with arcs of *AB* or *AC*
	(ii)	3 to 3.4 cm	**1ft**	for their *P* on their bisector
	(d)	arc centre their *A* radius 5 cm	**1ft**	minimum must cut their *AB* and *AC*
	(e)	shading inside arc **and** to left of perpendicular bisector	**2**	**SC1** for either condition met

4)	lines of symmetry	1	0	1, 1	
	order rotational	1	4	1, 1	

Scale drawing / Loci / symmetry 1 Answers

5)

(a)	Accurate triangle *PQR* with arcs	**2**	**SC1** for accurate without arcs or correct mirror image with arcs
(b) (i)	Accurate perpendicular bisector of *PR* with arcs	**2ft**	**SC1** ft for accurate without arcs or accurate arcs without line or accurate with arcs of other side.
(ii)	Accurate angle bisector of angle *P* with arcs	**2ft**	**SC1** ft for accurate without arcs or accurate arcs without line or accurate with arcs of other angle.
(c)	Region shaded cao	**1**	Intended region clear
(d)	4.5 cao	**2**	**SC1** for figs 45 or 3.5 or 1 cm = 0.5 km

6)

(a) Two parallel straight lines 7 cm long and 4 cm from *AB* **and** two semicircular ends 4 cm from *A* and from *B*.	2	**W1** for 2 correct lines or 2 semicircles.

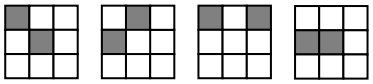
7)

(a)	0	**1**
(b)	2	**1**

8)

Perpendicular bisector of AB **with** 2 pairs of arcs	2	**SC1** accurate, but without arcs

9)

(a) 2 lines joining opposite vertices	1, 1	Independent Accept reasonable freehand
(b) Centre square and any other **or** 2 adjacent corner squares **or** 2 centre squares on adjacent edges	1	Any of these diagrams:  May be rotated through 90, 180, 270 degrees

10)

(a) 2	1	
(b) 2	1	

Scale drawing / Loci / symmetry 1 Answers

11)

(a) (i)	Accurate perpendicular bisector of *AB* with arcs	2	**SC1** if accurate without arcs or accurate bisector of wrong side with arcs
(ii)	Accurate bisector of angle *ADC*	2	**SC1** if accurate without arcs or accurate bisector of wrong angle with arcs
(b)	Ruled line 2 cm from and parallel to *BC*	2	**SC1** if not ruled
(c)	Correct region shaded cao	1	Dependent on at least **SC1** in **(a)(i)**, **(a)(ii)** and **(b)**

12)

(a) (i)	9 or 8.9 to 9.1	1	
(ii)	53 – 55	1	
(b)	compass drawn circle centre *C* radius 7 cm	2	SC1 incomplete accurate circle SC1 any complete circle centre *C*
(c)	correct line drawn with angle *BCX* = 67°	2ft	SC1 for *BCX* = 113° or *BCX* = 67° inside triangle or *BCX* = 67°, *CX* not = 7
(d)	in range 9.3 – 9.9	1ft	Strict ft from **(c)**
(e)	ruled accurate angle bisector of **their** *CBX* with 2 pairs of arcs	2ft	SC1 if accurate but without arcs or M1 for 2 pairs of arcs

13)

(a)	Point *C* constructed with arcs, AC = 11 cm BC = 9 cm	2	W1 if correct without arcs
(b)	46°	1ft	
(c) (i)	Bisector of angle *ABC* with 4 correct arcs and reaches AC	2ft	W1 if accurate without arcs or accurate with arcs and short
(ii)	Perpendicular bisector of *AC*, with correct arcs	2ft	W1 if accurate without arcs
(d) (i)	0.7 to 0.8 cm	1ft	ft their PQ provided on their AC
(ii)	Region of triangle between their constructions	1	dep on W1 and W1 in **(c)(i)** and **(c)(ii)**
(e)	500	2	W1 for figs 5 or 9 and 4500 oe seen

14)	**(a)**	**(i)**	Correct construction	**2**	**B1** for two lines or **B1** for accurate arcs seen or **B1** for one correct line with two arcs **SC1** for $AC = 6$ and $BC = 7$ with arcs
		(ii)	47° (45 – 49)	**1ft**	**Strict** ft their **(a)(i)**
		(iii)	Correct construction	**2ft**	Their **(a)(i) B1** for accurate arcs no line or **B1** for accurate line drawn no arcs or **B1** for accurate line with arcs bisecting another angle
		(iv)	4 (3.8 – 4.2)	**1ft**	**Strict** ft their **(iii)** with intersection on opposite side of triangle
		(v)	Correct construction	**2ft**	**B1** for accurate arcs no line or **B1** for accurate line drawn no arcs or **B1** for accurate line with arcs, bisecting AB or
		(vi)	Correct region shaded	**1ft**	ft is for boundaries of correct perpendicular bisector of **their *BC*** and correct angle bisector of **their *ABC***, with or without arcs
	(b)	**(i)**	Correct scale drawing of PQ	**2**	**B1** for accurate angle 40^o, **B1** for PQ 8cm
		(ii)	Correct scale drawing of their QR	**2**	**B1** for accurate angle 160^o, **B1** for QR 6cm
		(iii)	35 to 37	**1ft**	Measure × 5 ± 1km
		(iv)	264 to 268	**1ft**	