01. 0580_s24_ms_21 Q: 6

	145	**3**	**M1** for 180 ÷ 6 or any angle congruent to *BCD* = 30 **M1** for (360 – 40 – *their* 30) ÷ 2 oe

02. 0580_s24_ms_21 Q: 13

	62	**3**	**B2** for $m = 20$ or **M1** for $5m + 4m = 180$ soi or $p + 4m + 38 = 180$ soi

03. 0580_s24_ms_22 Q: 20

	3.9	**3**	**M2** for $5.2 \times \sqrt[3]{\frac{33.75}{80}}$ oe or **M1** for $\frac{\sqrt[3]{33.75}}{\sqrt[3]{80}}$ oe or $\frac{\sqrt[3]{80}}{\sqrt[3]{33.75}}$ oe or $\frac{h^3}{5.2^3} = \frac{33.75}{80}$ oe

04. 0580_s24_ms_23 Q: 14

(a)	50	**1**	
(b)	24	**2**	**B1** for angle *PQR* = 132 soi or **M1** for $\frac{180-(180-48)}{2}$

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05. 0580_s24_ms_23 Q: 18

	25	**3**	**B2** for [*y* =] 14.4 oe or **M1** for $y + 11.5y = 180$ or for 360 ÷ *their y*

06. 0580_m23_ms_22 Q: 10

10	9.45	**3**	**M2** for $\frac{2.7 \times 7.5}{3} + 2.7$ oe OR **B2** for 6.75 oe or **M1** for $\frac{3}{7.5} = \frac{2.7}{XC}$ oe If 0 scored **SC1** for answer 7.7

07. 0580_m23_ms_22 Q: 12

12	24	**3**	**M2** for $180(n-2)=11\times360$ oe OR **M1** for $\frac{180}{11+1}$ [× 11] oe **M1** for $\frac{360}{their\ 15}$ or for $\frac{(n-2)\times180}{n}=(180-their\ 15)$

08. 0580_m23_ms_22 Q: 14

14	6.12 or 6.116… to 6.118	**3**	**M1** for $\sin=\frac{3}{9}$ oe or $\cos=\frac{9^2+9^2-6^2}{2\times9\times9}$ oe **M1 dep** for $\frac{their\ angle}{360}\times\pi\times2\times9$ dependent on use of trig for *their angle*

09. 0580_m23_ms_22 Q: 17

17(a)	42	**1**	
17(b)	55	**1**	
17(c)	85	**1**	
17(d)	108	**2**	**M1** for [angle ACD =] 53 or [angle BAC =] 30
17(e)	53	**1**	

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10. 0580_s23_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
	51	**2**	**M1** for 360 – (56 + 104 + 71)

11. 0580_s23_ms_21 Q: 3

Question	Answer	Marks	Partial Marks
	58, vertically opposite	**2**	**B1** for each
	122, interior	**2**	**B1** for each

12. 0580_s23_ms_21 Q: 9

Question	Answer	Marks	Partial Marks
	6.3	**2**	**M1** for $\frac{5.6}{h} = \frac{7.2}{8.1}$ oe or better

13. 0580_s23_ms_21 Q: 12

Question	Answer	Marks	Partial Marks
(a)	SSS	**1**	
(b)(i)	42	**1**	
(b)(ii)	42	**1**	**FT** their part **(i)**
(b)(iii)	84	**1**	**FT** 2 × their part **(ii)**

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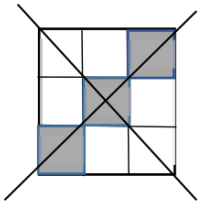
14. 0580_s23_ms_22 Q: 13

Question	Answer	Marks	Partial Marks
	116	**2**	**B1** for *ABD* = 32, *CAB* = 32, *BDC* = 32 or *CED* = 116 or **M1** for 180 – 32 – 32

15. 0580_s23_ms_23 Q: 1

Question	Answer	Marks	Partial Marks
(a)	2	**1**	
(b)		**2**	**B1** for one correct line and no extras or two correct lines and one extra

16. 0580_w23_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
	98	**2**	**M1** for $x + 41 + 41 = 180$ oe or better

17. 0580_w23_ms_21 Q: 17

Question	Answer	Marks	Partial Marks
	33	**3**	**B2** for $254 + 20 + x + 53 = 360$ oe or better or $53 + 20 + x + 37 + 37 = 180$ oe or better or $OAB = 33$ or $AOB = 114$ or 70 and 37 correctly identified or 53 and 20 correctly identified or **B1** for any correct relevant angle identified

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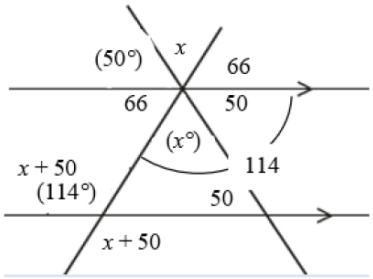
18. 0580_w23_ms_22 Q: 5

Question	Answer	Marks	Partial Marks
	64	2	**B1** for any of these angles labelled on the diagram  or **M1** for $x + 50 = 114$ or better

19. 0580_w23_ms_22 Q: 11

Question	Answer	Marks	Partial Marks
(a)	3.5	2	**M1** for $\frac{9}{5} = \frac{6.3}{h}$ oe
(b)	51.84	2	**M1** for $\left(\frac{9}{5}\right)^2$ or $\left(\frac{5}{9}\right)^2$ oe or $\left(\frac{6.3}{their(a)}\right)^2$ or $\left(\frac{their(a)}{6.3}\right)^2$ oe

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20. 0580_w23_ms_22 Q: 17

Question	Answer	Marks	Partial Marks
(a)	62	2	**B1** for angle $AOB = 124$ or **M1** for $\frac{180-28-28}{2}$ oe
(b)	81	2	**B1** for angle $RQP = 47$ or $QPU = 52$ or **M1** for $180 - 52 - 47$

21. 0580_w23_ms_23 Q: 5

Question	Answer	Marks	Partial Marks
(a)	Parallelogram	**1**	
(b)	68	**2**	**M1** for $180 - 112$ oe or for $180 - 112 - 44$

22. 0580_m22_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
	40°	**1**	

23. 0580_m22_ms_22 Q: 6

Question	Answer	Marks	Partial Marks
	correct triangle with arcs	**2**	**B1** for correct triangle with incorrect or no arcs or for two correct arcs. or a triangle with arcs but one side not in range

24. 0580_s22_ms_21 Q: 11

Question	Answer	Marks	Partial Marks
(a)	4.5 oe	**2**	**M1** for $\frac{8}{6} = \frac{6}{QR}$ oe or better
(b)	135	**2**	**M1** for $\left(\frac{6}{8}\right)^3$ or $\left(\frac{8}{6}\right)^3$ or $\left(\frac{their 4.5}{6}\right)^3$ oe

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25. 0580_s22_ms_21 Q: 12

Question	Answer	Marks	Partial Marks
	162	3	**M2** for $\left(\frac{(5-2)\times 180}{4+5+5+7+9}\right) \times k$ where $k = 1, 4, 5, 7, 9$ or **M1** for $180n \div (4 + 5 + 5 + 7 + 9)$ where $n \geqslant 2$ or for $(5 – 2) \times 180$ oe

26. 0580_s22_ms_21 Q: 18

Question	Answer	Marks	Partial Marks
	[x =] 38 [y =] 22	3	**B1** for [x =] 38 and **B2** for [y =] 22 or **M1** for angle ACB = *their* x or angle $BAD = 60$ or angle $CBA = 120$

27. 0580_s22_ms_21 Q: 19

Question	Answer	Marks	Partial Marks
	PQX and alternate PXQ and [vertically] opposite oe ASA XB	4	**B2** for lines 1 and 2 correct or **B1** for line 1 or 2 correct, or both angles correct **B1** for line 3 correct **B1** for line 4 correct

28. 0580_s22_ms_23 Q: 3

Question	Answer	Marks	Partial Marks
	97	2	**M1** for 360 – (73 + 129 + 75)

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29. 0580_s22_ms_23 Q: 11

Question	Answer	Marks	Partial Marks
	DE	**1**	

30. 0580_s22_ms_23 Q: 17

Question	Answer	Marks	Partial Marks
	ADC and *ADB* and 90 *AD* RHS	**3**	**B1** for each correct line

31. 0580_w22_ms_21 Q: 5

Question	Answer	Marks	Partial Marks
	54	**2**	**M1** for 180 – 71 – 55 oe or **B1** for 55 or 125 in a relevant correct position on the diagram

32. 0580_w22_ms_21 Q: 12

Question	Answer	Marks	Partial Marks
(a)	6	**1**	
(b)	8	**2**	**M1** for $\left(\frac{2}{3}\right)^2$ or $\left(\frac{3}{2}\right)^2$ oe seen

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33. 0580_w22_ms_21 Q: 16

Question	Answer	Marks	Partial Marks
	[*u* =] 20 [*v* =] 52 [*w* =] 108 [*x* =] 36	**4**	**B1** for each

34. 0580_w22_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
	112	**2**	**M1** for $180 - 34 \times 2$ oe

35. 0580_w22_ms_22 Q: 9

Question	Answer	Marks	Partial Marks
(a)	A and C	**1**	
(b)	ASA	**1**	

36. 0580_w22_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
	Opposite angles add up to 180 oe	**1**	

37. 0580_w22_ms_23 Q: 11

Question	Answer	Marks	Partial Marks
	15	**4**	**B2** for $x = 16$ soi or **M1** for $7x + 44 + x + 8 = 180$ or better **M1** for $360 \div (\textit{their}\ x + 8)$ oe

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38. 0580_m21_ms_22 Q: 1

Question	Answer	Marks	Partial Marks
(a)	2	**1**	
(b)	2 correct lines	**2**	**B1** for each

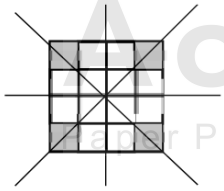
39. 0580_m21_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
	36	2	**M1** for angle *EHG* = 72 or for angle *EHF* = 47 **and** *GHF* = 25

40. 0580_m21_ms_22 Q: 20

Question	Answer	Marks	Partial Marks
(a)	1.84	2	**M1** for $\frac{1.61}{x}=\frac{2.8}{3.2}$ oe
(b)	9.20 or 9.204 to 9.205	3	**M2** for $11.5\times\sqrt[3]{\frac{4}{7.8}}$ oe or **M1** for $\sqrt[3]{\frac{4}{7.8}}$ or $\sqrt[3]{\frac{7.8}{4}}$ oe seen or for $\frac{11.5^3}{x^3}=\frac{7.8}{4}$ oe

41. 0580_s21_ms_21 Q: 1

Question	Answer	Marks	Partial Marks
(a)	4	1	
(b)		2	**B1** for 2 or 3 correct lines drawn or for 4 correct lines and one wrong extra line

42. 0580_s21_ms_21 Q: 4

Question	Answer	Marks	Partial Marks
	[*a* =] 59 [*b* =] 37 [*c* =] 84	3	**B1** for each If 0 scored **SC1** for *their* (*a* + *b* + *c*) = 180 if *a*, *b*, *c* > 0

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43. 0580_s21_ms_22 Q: 6

Question	Answer	Marks	Partial Marks
	Accurate construction of rhombus with sides 6.5 cm and correct construction arcs.	**2**	**B1** for accurate diagram with no/wrong arcs or for one triangle (6.5 cm, 6.5 cm, 8 cm) correctly constructed with correct arcs or for four correct arcs

44. 0580_s21_ms_22 Q: 13

Question	Answer	Marks	Partial Marks
	68	**3**	**M1** for correctly identifying 90° angle soi or *DAC* / *DCA* = 68 **M1** for [obtuse angle] *AOC* identified as $2x$ soi or x = *their DAC* / *DCA*

45. 0580_s21_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
	Congruent SAS Congruent SSS Not congruent None	**3**	**B1** for each correct row

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46. 0580_s21_ms_23 Q: 3

Question	Answer	Marks	Partial Marks
	Corresponding	**1**	

47. 0580_s21_ms_23 Q: 4

Question	Answer	Marks	Partial Marks
	130	**2**	**M1** for 360 – 100 or better

48. 0580_s21_ms_23 Q: 15

Question	Answer	Marks	Partial Marks
(a)	Similar	1	
(b)	4	2	**M1** for $\frac{12}{6}=\frac{8}{BX}$ oe or better If **0** scored **SC1** for answer 3.5
(c)(i)	6.7265 or 6.73 or 6.726 to 6.727	2	**M1** for scale factor 2^2 or $\left(\frac{1}{2}\right)^2$ oe soi
(c)(ii)	13.453 or 13.5 or 13.45 to 13.46	1	**FT** *their* **(c)(i)** $\times 2$

49. 0580_s21_ms_23 Q: 17

Question	Answer	Marks	Partial Marks
	72	2	**M1** for $\frac{360}{180-175}$ oe or $\frac{180(n-2)}{n}=175$ oe

50. 0580_s21_ms_23 Q: 19

Question	Answer	Marks	Partial Marks
(a)	80	2	**B1** for angle $PQT = 50$
(b)	[w =] 68 [x =] 36	3	**B1** for 68 **B2** for 36 or **M1** for $3x + 2x + 68 + 112 = 360$ or better

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51. 0580_w21_ms_21 Q: 10

Question	Answer	Marks	Partial Marks
	60	2	**M1** for 360 ÷ (180 – 174) or for $\frac{180(n-2)}{n}=174$ oe

52. 0580_w21_ms_21 Q: 15

Question	Answer	Marks	Partial Marks
	3 : 5 nfww	**4**	**M3** for $5^2 - 1$ oe and $8^2 - 5^2 + 1$ oe or **M2** for $5^2 - 1$ oe or $8^2 - 5^2 + 1$ oe or **M1** for 5^2 oe or 8^2 oe seen

53. 0580_w21_ms_22 Q: 4

Question	Answer	Marks	Partial Marks
	79 nfww	**3**	**M2** for $x + x + 58 + 58 + 86 = 360$ oe or $86 - (180 - 2 \times 58)$ implied by $CAB = 22$ or **B1** for $DCA = 58$ or $BCA = x$ or $DAC = 64$

54. 0580_w21_ms_22 Q: 10

Question	Answer	Marks	Partial Marks
	15	**2**	**M1** for $360 \div (180 - 156)$ or $\frac{180(n-2)}{n} = 156$ oe

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55. 0580_w21_ms_22 Q: 14

Question	Answer	Marks	Partial Marks
(a)	55 Alternate segment theorem	**2**	**B1** for 55
(b)	Tangents from an external point are equal in length	**1**	

56. 0580_w21_ms_23 Q: 2

Question	Answer	Marks	Partial Marks
	48	2	**B1** for 132 or 48 in the correct position on the diagram or **M1** for 180 – 132

57. 0580_w21_ms_23 Q: 17

Question	Answer	Marks	Partial Marks
	240	2	**M1** for 360 ÷ (180 – 178.5) oe or for $\frac{180(n-2)}{n}=178.5$ oe

58. 0580_w21_ms_23 Q: 20

Question	Answer	Marks	Partial Marks
	40 000	3	**B2** for 1 cm to 0.4 km or 2.5 cm to 1 km or 1 600 000 000 or **M2** for $\sqrt{\frac{3\times10^{k}}{18.75}}$ oe where $k > 5$ or **M1** for 1 cm^2 to 0.16 km^2 or 6.25 cm^2 to 1 km^2 or for 3×10^{10} oe or 1.875×10^{-9} oe or 3×10^{6} oe **and** 1.875×10^{-3} oe

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59. 0580_m20_ms_22 Q: 4

Question	Answer	Marks	Partial Marks
	165	2	**M1** for $\frac{(24-2)\times180}{24}$ or $180-\frac{360}{24}$

60. 0580_m20_ms_22 Q: 11

Question	Answer	Marks	Partial Marks
(a)	Rotation 90° clockwise oe (0, 2)	**3**	**B1** for each
(b)	Reflection $y = x$	**2**	**B1** for each
(c)	Enlargement [sf] $\frac{1}{2}$ (4, 6)	**3**	**B1** for each

61. 0580_m20_ms_22 Q: 15

Question	Answer	Marks	Partial Marks
	116°	**B1**	
	alternate segment theorem	**B1**	
	angles in opposite segments are supplementary or cyclic quadrilateral or angles at a point on a straight line	**B1**	

62. 0580_P20_ms_20 Q: 7

	Answer	Mark	Partial Marks
	Triangle drawn accurately with a ruler and a pair of arcs	**2**	**B1** for two sides of the correct length drawn as part of a triangle

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63. 0580_P20_ms_20 Q: 8

	Answer	Mark	Partial Marks
	(a =) 70 (b =) 40	**2**	**B1** for each

64. 0580_P20_ms_20 Q: 12

	Answer	Mark	Partial Marks
	9.1 oe	**2**	**M1** for $\frac{5.2}{PQ} = \frac{12.4}{21.7}$ oe

65. 0580_P20_ms_20 Q: 16

	Answer	Mark	Partial Marks
	145	3	**M2** for $(6 - 2) \times 180 - 5 \times 115$ oe or **M1** for $(6 - 2) \times 180$ oe Alternative method **M2** for $180 - (360 - 5 \times (180 - 115))$ or **M1** for $360 - 5 \times (180 - 115)$

66. 0580_P20_ms_20 Q: 26

	Answer	Mark	Partial Marks
(a)	55	1	
	Alternate segment	1	
(b)	115	1	
	Cyclic quadrilateral	1	

67. 0580_s20_ms_21 Q: 6

	Answer	Marks	Partial Marks
	7	3	**M2** for $166 + 2x = 180$ or better or **M1** for $97 - 3x + 69 + 5x = 180$ oe

68. 0580_s20_ms_21 Q: 10

	Answer	Marks	Partial Marks
	$[x =]$ 55 $[y =]$ 24	2	**B1** for each

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69. 0580_s20_ms_21 Q: 15

	Answer	Marks	Partial Marks
	Complete explanation with geometrical reasons	3	**B1** for $RQP = x°$ QR bisects angle PQB **B1** for $RPQ = x°$ alternate segment theorem **B1** for triangle PQR has two equal angles both less than 60 (so can't be equilateral) so must be isosceles

70. 0580_s20_ms_22 Q: 1

	Answer	Marks	Partial Marks
	2	**1**	

71. 0580_s20_ms_22 Q: 3

	Answer	Marks	Partial Marks
	25	**2**	**B1** for 130 seen or **M1** for $50 \div 2$

72. 0580_s20_ms_22 Q: 20

	Answer	Marks	Partial Marks
(a)	49	**1**	
(b)	98	**1**	**FT** $2 \times$ *their* **(a)**
(c)	20	**1**	
(d)	70	**1**	**FT** $90 -$ *their* **(c)**

73. 0580_s20_ms_23 Q: 3

	Answer	Marks	Partial Marks
	116	**2**	**M1** for angle $ACB = 32$ soi

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74. 0580_s20_ms_23 Q: 17

	Answer	Marks	Partial Marks
	5	**3**	**M2** for $8 \times \sqrt{\frac{52.5}{134.4}}$ oe or **M1** for $\sqrt{\frac{52.5}{134.4}}$ or $\sqrt{\frac{134.4}{52.5}}$ oe

75. 0580_w20_ms_21 Q: 2

Question	Answer	Marks	Partial Marks
	Correct triangle constructed with $AC = 5$ cm and $BC = 6.5$ cm and intersecting arcs	**3**	**B2** for correct triangle with no/incorrect arcs or **SC2** for accurate triangle with arcs but sides interchanged or **B1** for 6.5 [cm] or 5 [cm] soi

76. 0580_w20_ms_21 Q: 11

Question	Answer	Marks	Partial Marks
	$[a =] -1$ $[b =] 5$ $[c =] 1$ $[d =] 4$	**2**	**B1** for two or three correct or **SC1** for $[a =] x \geqslant -1$ $[b =] x \leqslant 5$ $[c =] y \geqslant 1$ $[d =] y \leqslant 4$

77. 0580_w20_ms_21 Q: 12

Question	Answer	Marks	Partial Marks
	15	**2**	**M1** for $\frac{360}{180-156}$ or $\frac{180(n-2)}{n} = 156$ oe

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78. 0580_w20_ms_21 Q: 20

Question	Answer	Marks	Partial Marks
	107	**4**	**B2** for $x = 40$ or **M1** for $2x + x + 60 = 180$ oe **M1** for correctly substituting *their* x into $4x - 87 + y = 180$ oe or $4x - 87 + x + 60 + y + 2x = 360$ oe

79. 0580_w20_ms_22 Q: 4

Question	Answer	Marks	Partial Marks
	[x =] 60 [y =] 80	3	**B1** for [x =] 60 **B2** for [y =] 80 or **B1** for 40 in a correct place on diagram If 0 scored **SC1** for *their* x + *their* y = 140

80. 0580_w20_ms_22 Q: 8

Question	Answer	Marks	Partial Marks
	171	2	**M1** for 180 – (360 ÷ 40) oe or $\frac{(40-2)\times 180}{40}$ oe

81. 0580_w20_ms_22 Q: 20

Question	Answer	Marks	Partial Marks
	60	3	**M2** for $4\times\sqrt[3]{\frac{40500}{12}}$ oe or **M1** for $\left(\frac{4}{l}\right)^3=\frac{12}{40500}$ oe or $\sqrt[3]{\frac{40500}{12}}$ oe or $\sqrt[3]{\frac{12}{40500}}$ oe

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82. 0580_w20_ms_23 Q: 3

Question	Answer	Marks	Partial Marks
	Accurate triangle with correct construction arcs	2	**B1** for accurate triangle with no/incorrect arcs or **SC1** for accurate triangle with arcs with sides interchanged

83. 0580_w20_ms_23 Q: 6

Question	Answer	Marks	Partial Marks
(a)	Kite	1	
(b)	80	2	**M1** for (180 – 82 – 58) or better

84. 0580_w20_ms_23 Q: 16

Question	Answer	Marks	Partial Marks
	205.8	3	**M2** for $38.4 \times \left(\frac{7}{4}\right)^3$ oe or **M1** for $\left(\frac{7}{4}\right)^3$ or $\left(\frac{4}{7}\right)^3$ oe or $\frac{7}{4} = \sqrt[3]{\frac{v}{38.4}}$ oe

85. 0580_m19_ms_22 Q: 15

	Answer	Mark	Partial Marks
	73	3	**B1** for angle $PBC = 52$ **B1** for APO or $BPC = 55$ or APC or $OPB = 125$

86. 0580_m19_ms_22 Q: 24

	Answer	Mark	Partial Marks
(a)	5.95 or 5.954...	3	**M2** for $\frac{7.4}{\sin 97} \times \sin 53$ or **M1** for $\frac{\sin 97}{7.4} = \frac{\sin 53}{SR}$ oe
(b)	3.73 or 3.733 to 3.734	4	**M2** for $8.5^2 + 7.4^2 - 2 \times 8.5 \times 7.4 \times \cos 26$ or **M1** for implicit form **A1** for 13.9[4...]

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87. 0580_s19_ms_21 Q: 8

	Answer	Mark	Partial Marks
	100	2	**M1** for reflex angle = 2 × 130 or opposite angle of a cyclic quadrilateral shown = 50

88. 0580_s19_ms_22 Q: 4

	Answer	Mark	Partial Marks
(a)	Trapezium	1	
(b)	Obtuse	1	

89. 0580_s19_ms_22 Q: 10

	Answer	Mark	Partial Marks
	2.1	2	**M1** for $\frac{33.6 \times 25000^2}{100000^2}$ oe or answer figs 21

90. 0580_s19_ms_23 Q: 13

	Answer	Mark	Partial Marks
(a)	4	1	
(b)	Accurate drawing with correct construction arcs	2	**B1** for accurate drawing without the correct arcs

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91. 0580_s19_ms_23 Q: 19

	Answer	Mark	Partial Marks
	36	4	**B1** for angle *KNL* or *MNJ* = 76 **B2** for angle *LJM* or *LKM* = 68 or **B1** for angle *LMJ* = 90 or *LKJ* = 90 or *LCM* = 136 (*C* = centre) OR **B1** for *MKJ* = 22 **B2** for *LJM* or *LKM* = 68 or **B1** for *LKJ* = 90 or *KJL* = 54 OR **B1** for *MNL* = 104 **B1** for *LMN* = 54 **B1** for *LMJ* = 90

92. 0580_w19_ms_22 Q: 12

	Answer	Mark	Partial Marks
	90	3	**M2** for 360 ÷ (180 – 176) oe or **M1** for 180(*n* – 2) = 176*n* oe or 180 – 176

93. 0580_w19_ms_22 Q: 17

	Answer	Mark	Partial Marks
	Bisector of angle *Q* accurate with two pairs of correct arcs and Arc centre *R*, radius 6.5 cm With bird table correctly indicated or implied by correct intersecting constructions	4	**M2** for bisector of angle *Q* accurate with two pairs of correct arcs or **M1** for accurate bisector with no/wrong arcs **M2** for arc centre *R*, radius 6.5 cm or **M1** for arc centre *R* Maximum 3 marks if incorrect position/region is labelled, or there is no label and a region is shaded, or *their* constructions do not intersect

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94. 0580_w19_ms_22 Q: 19

	Answer	Mark	Partial Marks
(a)	$180 - 4x$	**1**	
(b)	$90 - 2x$	**1**	**FT** *their* **(a)** ÷ 2 in its simplest form dep on expression in x in **(a)**
(c)	$90 + x$	**2**	**FT** $180 -$ *their* **(b)** $- x$ oe dep on expression in x in **(b)** then fully simplified **M1** for $180 - (90 - 2x + x)$ oe or $180 -$ *their* **(b)** $- x$ oe dep on expression in x in **(b)**

95. 0580_m18_ms_22 Q: 5

	Answer	Mark	Partial Marks
(a)	5	**1**	
(b)	1	**1**	

96. 0580_m18_ms_22 Q: 14

	Answer	Mark	Partial Marks
(a)	similar	**1**	
(b)	11.61	**3**	**M2** for $8.6 \times \sqrt{\frac{65.61}{36}}$ or **M1** for $\sqrt{\frac{65.61}{36}}$ or $\sqrt{\frac{36}{65.61}}$ or $\left(\frac{8.6}{BX}\right)^2 = \frac{36}{65.61}$ oe

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97. 0580_m18_ms_22 Q: 15

	Answer	Mark	Partial Marks
	63 corresponding [angles] 59 angles [in a] triangle [add up to] 180 oe	**4**	**B1** for [a =] 63 **B1** for corresponding angles **B1FT** for [b =] 59 or *their* a + *their* b = 122 **B1** for angles [in a] triangle [add up to] 180 oe

98. 0580_m18_ms_22 Q: 18

	Answer	Mark	Partial Marks
(a)	Correct ruled perpendicular bisector of AB with correct pairs of arcs	2	**B1** for correct perpendicular bisector without correct arcs or for correct arcs, with no/wrong line
(b)	Correct ruled bisector of angle ABC with 2 correct pairs of arcs	2	**B1** for correct angle bisector without correct arcs or for correct arcs, with no/wrong line

99. 0580_s18_ms_21 Q: 5

	Answer	Mark	Partial Marks
	94	2	**B1** for ACB or PAB or $ABC = 43$ or **M1** for $180 - 2 \times 43$ or $\frac{1}{2}x = 90 - 43$

100. 0580_s18_ms_21 Q: 19

	Answer	Mark	Partial Marks
	46.2 or 46.17 to 46.18	4	**M2** for $[\cos =]\frac{16^2 + 19^2 - 14^2}{2 \times 16 \times 19}$ or **M1** for $14^2 = 19^2 + 16^2 - 2 \times 19 \times 16\cos M$ **A1** for 0.692… or $\frac{421}{608}$

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101. 0580_s18_ms_22 Q: 9

	Answer	Mark	Partial Marks
	Correct perpendicular bisector of AB with 2 pairs of correct arcs	2	**B1** for correct perpendicular bisector of AB with no or wrong arcs or for 2 pairs of correct arcs

102. 0580_s18_ms_22 Q: 11

	Answer	Mark	Partial Marks
	80	2	**M1** for $\left(\frac{12}{3}\right)^2$ or $\left(\frac{3}{12}\right)^2$ oe or $\frac{3^2}{5} = \frac{12^2}{A}$ oe

103. 0580_s18_ms_22 Q: 16

	Answer	Mark	Partial Marks
	7.5 nfww	3	**M2** for $[OB^2 =] \left(\frac{12}{2}\right)^2 + 4.5^2$ oe or **B1** for recognition of right angle

104. 0580_s18_ms_23 Q: 20

	Answer	Mark	Partial Marks
	$[w =]$ 95 $[x =]$ 85 $[y =]$ 48	3	**B1** for each If **B0** scored for x and for y, **SC1** for *their* x + *their* y = 133

105. 0580_s18_ms_23 Q: 25

	Answer	Mark	Partial Marks
(a)	1.8	2	**M1** for $\frac{10}{8} = \frac{9}{AP}$ oe
(b)	10.3 or 10.31 to 10.32	3	**M2** for $13 \times \sqrt[3]{\frac{0.25}{0.5}}$ oe or **M1** for $\sqrt[3]{\frac{0.5}{0.25}}$ oe or $\sqrt[3]{\frac{0.25}{0.5}}$ oe or $\frac{0.5}{0.25} = \left(\frac{13}{h}\right)^3$ oe

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106. 0580_w18_ms_21 Q: 2

	Answer	Mark	Partial Marks
	Congruent	1	

107. 0580_w18_ms_21 Q: 13

	Answer	Mark	Partial Marks
(a)	Correct angle bisector at B with two pairs of correct arcs reaching AC	2	**B1** for accurate with no/wrong arcs or for two pairs of correct arcs with no or wrong line or short line
(b)	Correct region shaded	1	

108. 0580_w18_ms_21 Q: 16

	Answer	Mark	Partial Marks
	[x =] 62	2	**B1** for 56 identified as angle A or **M1** for $\frac{(180-56)}{2}$
	[y =] 118	2	**FT** for 2 marks *their* acute x + *their* y =180 or 56 + *their* acute x = *their* y or **B1** for any of ACB, BCM or LCN = 62 or *their* acute x or **M1** for 180 – 62 or 180 – *their* acute x or 56 + 62 or 56 + *their* acute x

109. 0580_w18_ms_22 Q: 2

	Answer	Mark	Partial Marks
	5	1	

110. 0580_w18_ms_22 Q: 19

	Answer	Mark	Partial Marks
(a)	Correct ruled bisector with two pairs of arcs	2	**B1** for correct ruled bisector with no/wrong arcs
(b)	Correct arc centre E radius 3 cm inside pentagon	1	
(c)	Correct region shaded	1	Dependent on at least **B1** in part **(a)** and 1 mark in part **(b)** and a closed region

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111. 0580_m17_ms_22 Q: 2

	Answer	Mark	Partial Marks
	Equilateral triangle with correct arcs	2	**M1** for clear evidence of constructed 60° angles or arcs crossing equal in length to AB or an accurate diagram with no/incorrect arcs

112. 0580_s17_ms_21 Q: 11

	Answer	Mark	Partial Marks
	76.9 or 76.94 to 76.95	3	**M2** for $90 \div \sqrt[3]{\frac{160}{100}}$ or $90 \times \sqrt[3]{\frac{100}{160}}$ or **M1** for $\sqrt[3]{\frac{160}{100}}$ soi or $\sqrt[3]{\frac{100}{160}}$ soi or $\left(\frac{h}{90}\right)^3 = \frac{100}{160}$ oe

113. 0580_s17_ms_21 Q: 14

	Answer	Mark	Partial Marks
	165	3	**M2** for $\frac{360}{8} + \frac{360}{3}$ oe or **M1** for [exterior angle of octagon =] $\frac{360}{8}$ or [exterior angle of triangle =] $\frac{360}{3}$ oe

114. 0580_s17_ms_21 Q: 21

	Answer	Mark	Partial Marks
(a)	[u =] 35	1	
	[v =] 110	2	**B1** for ACB or ADB = 35
(b)	75	2	**B1** for 150 or **M1** for $\frac{360 - 210}{2}$

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115. 0580_s17_ms_22 Q: 8

	Answer	Mark	Partial Marks
	110	1	
	70	1	

116. 0580_s17_ms_22 Q: 16

	Answer	Mark	Partial Marks
(a)	Correct bisector with correct arcs	**2**	**B1** for correct bisector but no arcs or correct arcs but no line
(b)	Correct region shaded	**1**	

117. 0580_s17_ms_22 Q: 24

	Answer	Mark	Partial Marks
(a)	Similar	**1**	
(b)	5.6	**2**	**M1** for $\frac{4}{8} = \frac{2.8}{AX}$ oe
(c)	$\frac{y}{4}$ oe	**1**	

118. 0580_s17_ms_22 Q: 26

	Answer	Mark	Partial Marks
	[w =] 40	**1**	
	[x =] 95	**2**	**B1** for angle ABC = 85 or *their w* + *their CBD* = 85
	[y =] 45	**2**	**B1** for angle CBD = 45 or angle ACD = 40 or angle ACD = *their w* or y = *their CBD*

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119. 0580_s17_ms_23 Q: 10

	Answer	Mark	Partial Marks
(a)	10	**2**	**M1** for $5x + 6x + 7x = 180$ oe or $\frac{180}{5+6+7}$ or **B1** for angles 50, 60 and 70
(b)	70	**1FT**	**FT** 7 × *their* **(*a*)** provided 0 < *their answer* < 180

120. 0580_s17_ms_23 Q: 13

	Answer	Mark	Partial Marks
	150	3	**M2** for $\left(\frac{1}{0.512}\right)^{\frac{2}{3}}$ oe or $\left(\frac{0.512}{1}\right)^{\frac{2}{3}}$ oe or **M1** for scale factor $\left(\frac{1}{0.512}\right)^{\frac{1}{3}}$ oe or $\left(\frac{0.512}{[1]}\right)^{\frac{1}{3}}$ oe

121. 0580_w17_ms_21 Q: 1

	Answer	Mark	Partial Marks
	101	1	

122. 0580_w17_ms_21 Q: 11

	Answer	Mark	Partial Marks
	54	3	**M2** for $\frac{180\times(5-2)}{5}$ or $180-\frac{360}{5}$ or **M1** for $180\times(5-2)$ or $\frac{360}{5}$

123. 0580_w17_ms_21 Q: 18

	Answer	Mark	Partial Marks
	Correct position of *S* with 2 pairs of correct construction arcs for line	4	**B3** for correct position of *S* with missing/incorrect construction arcs but correct line or **B2** for correct ruled line equidistant from the two trees with correct arcs or **B1** for correct line with no/wrong arcs or correct arcs with no line and **B1** for arc centre bird bath, radius 5 cm or *S* in correct position with no/incorrect working

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124. 0580_w17_ms_22 Q: 3

	Answer	Mark	Partial Marks
	BC *AB* oe	**1**	

125. 0580_w17_ms_22 Q: 5

	Answer	Mark	Partial Marks
	[*x* =] 60 [*y* =] 40	**2**	**B1** for each or for two numbers that add to 100

126. 0580_w17_ms_22 Q: 17

	Answer	Mark	Partial Marks
	60	**3**	**B2** for $x = 6$ or **M1** for $29x + x = 180$ oe and **M1** for $360 \div 6$ or $360 \div$ *their x* or $180(n - 2) =$ *their x* $\times 29n$

127. 0580_w17_ms_22 Q: 22

	Answer	Mark	Partial Marks
	[*w* =] 54 [*x* =] 126 [*y* =] 60	**3**	**B1** for [*w* =] 54 **B1** for [*x* =] 126 If **B0 B0** for first two B marks then **B1** for *their w* + *their x* = 180 **B1** for [*y* =] 60 or for *their w* + *their x* + *their y* = 240

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128. 0580_w17_ms_23 Q: 4

	Answer	Mark	Partial Marks
	Kite	**1**	

129. 0580_w17_ms_23 Q: 11

	Answer	Mark	Partial Marks
	150	**3**	**M2** for $(12 - 2) \times 180 \div 12$ or $180 - 360 \div 12$ or **M1** for $(12 - 2) \times 180$ or $360 \div 12$ soi 30

130. 0580_w17_ms_23 Q: 22

	Answer	Mark	Partial Marks
(a)	19	**1**	
(b)	138	**3**	**M2** for 180 – (19 + 23) or 67 + (180 – 90 – 19) or better or **M1** for angle *AEB* = 23 or angle *AEC* = 42
(c)	90	**2**	**M1** for angle *EBC* = 71 or angle *EAB* = 90

131. 0580_m16_ms_22 Q: 5

	Answer	Mark	Partial Marks
	9.1 oe	**2**	**M1** for $\frac{5.2}{PQ} = \frac{12.4}{21.7}$ oe

132. 0580_m16_ms_22 Q: 18

	Answer	Mark	Partial Marks
(a)	47	**1**	
(b)	117	**2**	**M1** for 360 – (115 + 85 + 97)
(c)	244	**2**	**B1** for 116 seen at centre or 122 seen at circumference

133. 0580_s16_ms_21 Q: 9

	Answer	Mark	Partial Marks
	[*a* =] 70 [*b* =] 40	**2**	**B1** for each

134. 0580_s16_ms_21 Q: 11

	Answer	Mark	Partial Marks
(a)	112	**1**	
(b)	56	**1**	

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135. 0580_s16_ms_21 Q: 14

	Answer	Mark	Partial Marks
	More than 20m from *D* oe Nearer to *CD* than to *CB* oe	**2**	**B1** for each

136. 0580_s16_ms_21 Q: 17

	Answer	Mark	Partial Marks
	145	**3**	**M2** for $(6 – 2) \times 180 – 5 \times 115$ or **M1** for $(6 – 2) \times 180$ Alt method **M2** for $180 – (360 – 5 \times (180 – 115))$ or **M1** for $360 – 5 \times (180 – 115)$

137. 0580_s16_ms_22 Q: 4

	Answer	Mark	Partial Marks
	Parallelogram	**1**	

138. 0580_s16_ms_22 Q: 9

	Answer	Mark	Partial Marks
	45	**3**	**M2** for $360 \div (180 – 172)$ or **M1** for $180 – 172$ or $\frac{180(n-2)}{n} = 172$ oe

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139. 0580_s16_ms_22 Q: 17

	Answer	Mark	Partial Marks
(a)	Bisector of angle *B* accurate with two pairs of correct arcs	**2**	**B1** for accurate line with no/wrong arcs or for correct arcs with no/wrong line
(b)	Ruled line parallel to *AC* at a distance of 3 cm to *AC* only inside the triangle	**1**	

140. 0580_s16_ms_22 Q: 21

	Answer	Mark	Partial Marks
	62 on answer line or clearly identified as $<ACB$ **and** two correct supporting reasons	**4**	**B1** for $<AOB = 124$ or for *their* $<AOB \div 2$ or other appropriate correct angle one step from $<ACB$ **B1** for any correct reason e.g. isosceles triangle **or** angles in triangle = 180 **B1** for a different correct reason leading directly to $<ACB$ e.g. angle at circumference is ½ angle at centre oe **B1** for 62

141. 0580_s16_ms_23 Q: 6

	Answer	Mark	Partial Marks
	Correct perpendicular bisector with 2 pairs of correct arcs	**2**	**B1** for correct bisector with no arcs or incorrect arcs or for correct intersecting arcs with no/wrong line

142. 0580_s16_ms_23 Q: 12

	Answer	Mark	Partial Marks
	110	**3**	**B2** for $ADC = 25$ or **B1** for $AEC = 135$ or $CAE = 25$

143. 0580_s16_ms_23 Q: 13

	Answer	Mark	Partial Marks
(a)	72	**1**	
(b)	123	**2FT**	FT dep. on answer being obtuse **M1** for $(360 - \textit{their}(a) - 42)$ [÷2]

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144. 0580_s16_ms_23 Q: 21

	Answer	Mark	Partial Marks
(a)	5	2	**M1** for $\frac{9}{k}=\frac{6+4.8}{6}$ oe
(b)	24	3	**M2** for $\sqrt[3]{\frac{2592}{1500}} \times 20$ oe or **M1** for $\sqrt[3]{\frac{2592}{1500}}$ or $\sqrt[3]{\frac{1500}{2592}}$

145. 0580_w16_ms_21 Q: 6

	Answer	Mark	Partial Marks
	42	2	**M1** for $Q = 90$ or $WPQ = 90 - 42$ or $WPQ = 48$

146. 0580_w16_ms_21 Q: 9

	Answer	Mark	Partial Marks
	[x =] 55	1	
	[y =] 125	1FT	correct or **FT** (180 – their x)

147. 0580_w16_ms_21 Q: 16

	Answer	Mark	Partial Marks
	6.35 or 6.349 to 6.350	3	**M2** for $\frac{8}{h}=\sqrt[3]{\frac{0.5}{0.25}}$ oe or **M1** for $\left(\frac{8}{h}\right)^3=\frac{0.5}{0.25}$ oe or for $\sqrt[3]{\frac{0.5}{0.25}}$ or $\sqrt[3]{\frac{0.25}{0.5}}$ oe

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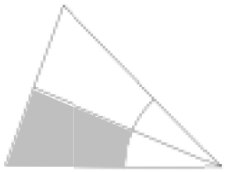
148. 0580_w16_ms_21 Q: 17

	Answer	Mark	Partial Marks
(a)	Accurate arc, centre B, radius 5 cm meeting both BA **and** BC	**1**	
(b)	Accurate bisector through angle B **with** 2 pairs of correct arcs **and** reaching to at least AC	**2**	**B1** for accurate line from B to at least AC or **M1** for correct arcs
(c)	Correct region identified 	**1**	

149. 0580_w16_ms_22 Q: 2

	Answer	Mark	Partial Marks
	25	**2**	**B1** for 67 or 113 seen once in correct position or **M1** for $a + 42 = 67$ or $a + 42 + 113 = 180$ or better

150. 0580_w16_ms_22 Q: 10

	Answer	Mark	Partial Marks
	46.3 or 46.29 to 46.30	**3**	**M2** for $53 \times \sqrt[3]{\frac{20}{30}}$ oe or **M1** for $\sqrt[3]{\frac{20}{30}}$ or $\sqrt[3]{\frac{30}{20}}$ or $\left(\frac{53}{x}\right)^3 = \frac{30}{20}$ or better

151. 0580_w16_ms_22 Q: 11

	Answer	Mark	Partial Marks
(a)	Accurate angle bisector with correct arcs	**2**	**B1** for accurate angle bisector **or** correct arcs with no/wrong line
(b)	Equidistant (oe) from AB and AC	**1**	

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152. 0580_w16_ms_23 Q: 3

	Answer	Mark	Partial Marks
	B	**1**	

153. 0580_w16_ms_23 Q: 15

	Answer	Mark	Partial Marks
(a)	68	**1**	
(b)	9	**2**	**M1** for 360 ÷ 40 oe or $\frac{180(n-2)}{n} = 140$ oe

154. 0580_m15_ms_22 Q: 6

	Answer	Mark	Partial Marks
(a)	Correct arc centre *B*, radius 5.7	**1**	
(b)	Shading below *CN* outside arc	**1FT**	FT shading below *CN* outside their arc centre *B*

155. 0580_m15_ms_22 Q: 7

	Answer	Mark	Partial Marks
	37	**2**	**M1** for 180 – 90 – 53 oe or **B1** for 53 or the right angle, either marked in correct place on diagram

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156. 0580_m15_ms_22 Q: 8

	Answer	Mark	Partial Marks
(a)	68	**1**	
(b)	15	**2**	**M1** for $\frac{360}{n} = 24$ or $(n-2)180 = 156n$

157. 0580_m15_ms_22 Q: 20

	Answer	Mark	Partial Marks
(a)	35	**2**	**M1** for [Z =] 180 – 88 – 57 or VWX = 57 or YZX = 35
(b)	10.8	**2**	**M1** for $\frac{AC}{7.2} = \frac{12.6}{8.4}$ oe

158. 0580_P15_ms_20 Q: 6

	Answer	Mark	Partial Marks
	135 cao	**3**	**M1** for 720 or (6 – 2) × 180 oe seen in working and **M1** for equation 180 + 4x = their 720 or **M1** for (360 – 180) ÷ 4 (= 45) oe seen in working and **M1** dep for 180 – their 45

159. 0580_P15_ms_20 Q: 7

	Answer	Mark	Partial Marks
	(a) (y =) 80	**1**	
	(b) (z =) 40	**1**	
	(c) (t =) 10	**1ft**	Follow through 90 – their y or 50 – their z

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160. 0580_P15_ms_20 Q: 9

	Answer	Mark	Partial Marks
	(a) Correct perpendicular bisector with arcs	**2**	**B1** correct line **B1** correct construction arcs
	(b) 60°	**1**	

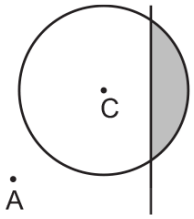
161. 0580_s15_ms_21 Q: 19

	Answer	Mark	Partial Marks
(a)	7.5	**2**	**M1** for [10] × $\frac{6}{8}$ oe
(b)	12 cao	**2**	**M1** for $9 \times \frac{8}{6}$ oe or $9 \times \frac{10}{\textit{their}\ \textbf{(a)}}$

162. 0580_s15_ms_22 Q: 7

	Answer	Mark	Partial Marks
	Parallel	1	
	Same length	1	

163. 0580_s15_ms_22 Q: 19

	Answer	Mark	Partial Marks
(a)		1	Correct circle, radius 4 cm centre C
(b)		2	**B2** for correct bisector with 2 pairs of correct arcs or **B1** for correct bisector with no/wrong arcs
(c)		1	Correct complete boundary and correct shading. Dep on at least **B1** in **(b)**

164. 0580_w15_ms_21 Q: 8

	Answer	Mark	Partial Marks
(a)	90	1	
(b)	8.29 or 8.289… to 8.29	2	**M1** for $\frac{OP}{11} = \tan 37^\circ$ oe

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165. 0580_w15_ms_22 Q: 2

	Answer	Mark	Partial Marks
	Parallelogram	1	

166. 0580_w15_ms_22 Q: 21

	Answer	Mark	Partial Marks
(a)	12	2	**M1** for $\frac{7.2}{x}=\frac{15}{25}$ oe or better eg $7.2\times\frac{25}{15}$
(b)	12.8	3	**M2** for $16\times\sqrt[3]{\frac{192}{375}}$ oe or **M1** for $\sqrt[3]{\frac{192}{375}}$ or $\sqrt[3]{\frac{375}{192}}$ oe or $\left(\frac{16}{y}\right)^3=\frac{375}{192}$ oe

167. 0580_w15_ms_23 Q: 8

	Answer	Mark	Partial Marks
	4140	2	**M1** for $(25-2)\times180$ or $25\times\left(180-\frac{360}{25}\right)$

168. 0580_w15_ms_23 Q: 14

	Answer	Mark	Partial Marks
	6	3	**M2** for $4.5\times\sqrt[3]{\frac{128}{54}}$ oe or better **M1** for $\sqrt[3]{\frac{128}{54}}$ or $\sqrt[3]{\frac{54}{128}}$ oe or $\frac{54}{128}=\left(\frac{4.5}{x}\right)^3$ oe

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169. 0580_s14_ms_21 Q: 13

	Answer	Mark	Partial marks
(a)	32	2	**B1** for $AOC = 116$
(b)	35	2	**B1** for $CDA = 122$

170. 0580_s14_ms_22 Q: 18

		Answer	Mark	Partial marks
		576	4	**M1** for $\frac{1458}{3456}$ or $\frac{3456}{1458}$ **M1 dep** for $\sqrt[3]{their\ \text{fraction}}$ **M1** for (*their* cube root)^2

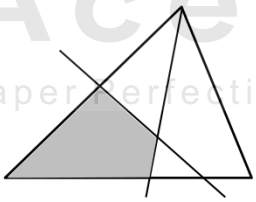
171. 0580_s14_ms_23 Q: 7

		Answer	Mark	Partial marks
	(a)	74	**1**	
	(b)	8.69	**1**	

172. 0580_w14_ms_21 Q: 3

	Answer	Mark	Partial marks
(a)	E B A cao	**1**	
(b)	Z cao	**1**	

173. 0580_w14_ms_21 Q: 15

	Answer	Mark	Partial marks
(a) (i)		**2**	**B2** for correct ruled bisector with correct arcs or **B1** for correct bisector with no/incorrect arcs
(ii)		**2**	**B2** for correct ruled bisector with correct arcs or **B1** for correct bisector with no/incorrect arcs
(b)		**1**	correct shading

174. 0580_w14_ms_22 Q: 3

	Answer	Mark	Partial marks
	8	**1**	

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175. 0580_w14_ms_22 Q: 9

	Answer	Mark	Partial marks
	9.13 or 9.127 to 9.1271	**3**	**M2** for $\sqrt[3]{\frac{1000}{440}}$ [1.31] oe or $\sqrt[3]{\frac{440}{1000}}$ [0.761] oe Or **M1** for $\frac{1000}{440}$ [2.27] oe or $\frac{440}{1000}$ [0.44] oe or $\sqrt[3]{\frac{figs\,440}{figs\,1000}}$ or $\sqrt[3]{\frac{figs\,1000}{figs\,440}}$

176. 0580_w14_ms_22 Q: 16

	Answer	Mark	Partial marks
(a)	108	**1**	
	Angle at **centre** is **twice** angle at **circumference** oe	**1**	
(b) (i)	$-\frac{4}{3}$ oe	**1**	
(ii)	−1	**1**	

177. 0580_w14_ms_22 Q: 20

	Answer	Mark	Partial marks
(a)	102 to 106	**2**	**B1** for 5.1 to 5.3 seen
(b)	Correct position of F with correct arcs for angle bisector	**5**	**B2** for Correct ruled angle bisector of *A* with correct arcs or **B1** for correct bisector with no/wrong arcs **and** **B2** for Arc centre *C*, radius 8 cm or **B1** for arc centre *C* with incorrect radius or correct conversion to 8cm **and** **B1** for marking position of F on *their* bisector and 8cm from *C* or on *their* arc centre *C*

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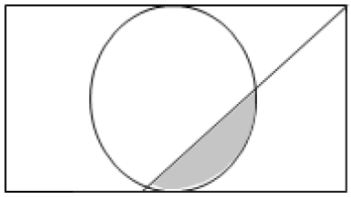
178. 0580_w14_ms_23 Q: 7

	Answer	Mark	Partial marks
	160	3	**M2** for $180-\frac{360}{18}$ or $\frac{180\times(18-2)}{18}$ oe or **M1** for $180\times(18-2)$ or $\frac{360}{18}$

179. 0580_w14_ms_23 Q: 12

	Answer	Mark	Partial marks
(a)	Complete circle centre *E* radius 3cm	1	
(b)	Correct ruled bisector with two pairs of correct arcs	2	**B1** for correct bisector with no/wrong arcs
(c)		1	dep on attempt at bisector of *C* and enclosed region

180. 0580_s13_ms_21 Q: 4

	Answer	Mark	Partial marks
	105	2	**M1** for 180 – 55 – 50 or **B1** for 55 or 75 seen in the correct angle inside the triangle

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181. 0580_s13_ms_22 Q: 9

	Answer	Mark	Partial marks
	40.3 or 40.31 to 40.32	3	**M2** for $4.4\times\sqrt[3]{\frac{0.05}{65}}$ soi **or M1** for $\sqrt[3]{\frac{0.05}{65}}$ soi or $\sqrt[3]{\frac{65}{0.05}}$ soi

182. 0580_s13_ms_22 Q: 10

	Answer	Mark	Partial marks
(a)	95	**1**	
(b)	77	**2**	**B1** for [angle] $ACD = 58°$ or [angle] $BAC = 19°$ or [angle] $ANB = 103°$ or [angle] $CAE = 66°$

183. 0580_s13_ms_23 Q: 6

	Answer	Mark	Partial marks
	6	**3**	**M2** for $3\times\sqrt[3]{\frac{288\pi}{36\pi}}$ or **M1** for $3\times\sqrt[3]{\frac{288\pi}{36\pi}}$ or $3\times\sqrt[3]{\frac{36\pi}{288\pi}}$

184. 0580_w13_ms_21 Q: 3

	Answer	Mark	Partial marks
	125	**2**	**B1** for 55 or 125 in any other correct position on diagram or **M1** for 180–55

185. 0580_w13_ms_21 Q: 11

	Answer	Mark	Partial marks
	150	**3**	**M1** for m^3 to cm^3 or cm^3 to m^3

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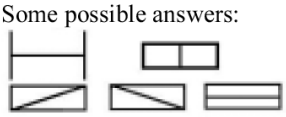
186. 0580_w13_ms_21 Q: 12

	Answer	Mark	Partial marks
	(a) 110	**1**	
	(b) 79	**2**	**B1** for $DAC = 42$ or $ACB = 79$ or $ACD = 28$

187. 0580_w13_ms_21 Q: 20

	Answer	Mark	Partial marks
	(a) (i) Accurate bisector of angle *B* with correct arcs	**2**	**B1** for correct line or correct arcs
	(ii) Accurate perpendicular bisector of *BC* with correct arcs	**2**	**B1** for correct line or correct arcs
	(b) correct region shaded	**1**	

188. 0580_w13_ms_22 Q: 5

	Answer	Mark	Partial marks
	(a) 	**1**	
	(b) Some possible answers: 	**1**	

189. 0580_w13_ms_22 Q: 9

	Answer	Mark	Partial marks
	decagon	**3**	**M1** for 360 ÷ 36 oe **A1** for 10

190. 0580_w13_ms_22 Q: 14

	Answer	Mark	Partial marks
	52	**3**	**B2** for *AOB* = 104 or **B1** for *OAB* or *OBA* = 38

191. 0580_w13_ms_23 Q: 13

	Answer	Mark	Partial marks
	(a) 24	**2**	**M1** for *MOC* = 48
	(b) 24	**2**	**M1** for *ACM* = 66 or **B1** for 48 – *their* **(a)**

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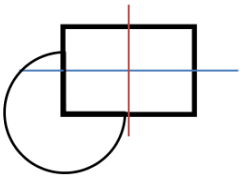
192. 0580_w13_ms_23 Q: 15

	Answer	Mark	Partial marks
	(a) Circle, radius 3 cm, centre *A*, not inside the rectangle	**2**	**M1** for arc or full circle centre A radius 3 cm or for an incorrect size circle at A outside rectangle
	(b) One line of symmetry with correct arcs. E.g.: 	**2**	**B1** for correct ruled line (must reach or cross two sides) **B1** for 2 pairs of intersecting arcs

193. 0580_s12_ms_21 Q: 9

	Answer	Mark	Partial marks
(a)	angle of 67° at *B*	**1**	**B1** *C* marked on *AD* unless the line stops at *AD* and also correct ruled line
(b)	perpendicular bisector of *AB*	**2**	**B1** correct arcs **B1** correct ruled line

194. 0580_s12_ms_22 Q: 2

	Answer	Mark	Partial marks
(a)	I cao	**1**	
(b)	I N cao	**1**	

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195. 0580_s12_ms_23 Q: 1

	Answer	Mark	Partial marks
	95	**2**	**B1** for 85 seen or **M1** $x = 180$ – their angle *ADC*, if it is clearly seen

196. 0580_w12_ms_21 Q: 3

	Answer	Mark	Partial marks
	(a) 3	**1**	
	(b) 4	**1**	

197. 0580_w12_ms_21 Q: 6

	Answer	Mark	Partial marks
	144	2	**M1** for $ABC = 72$ or AOC reflex $= 216$ Angles must be fully stated or marked in correct place on diagram

198. 0580_w12_ms_22 Q: 4

	Answer	Mark	Partial marks
	60	2	**M1** $360 \div 6$

199. 0580_w12_ms_22 Q: 12

	Answer	Mark	Partial marks
	12 by 30 by 42	3	**B1** for $10 \times 25 \times 35$ or 8750 **M1** $\sqrt[3]{\frac{15120}{8750}}$ (= 1.2)

200. 0580_w12_ms_23 Q: 6

	Answer	Mark	Partial marks
	Accurate perpendicular bisector of RT with arcs.	2	**B1** for 2 pairs of correct arcs **B1** for correct line

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201. 0580_w12_ms_23 Q: 15

	Answer	Mark	Partial marks
	30 000	3	**M2** for $7500 \times 200^2/100^2$oe or **M1** for 200^2 seen