Here are the answers to SET 5 of 100 GCSE Maths Geometry and Measures questions:

Mensuration and Calculation

1. 40 cm^2
2. 942.48 cm^3
3. 615.75 cm^2
4. 9.42 cm
5. 141.37 cm^2
6. 84.82 cm^3
7. 113.1 cm^2
8. 22 cm
9. 450 cm^3
10. 142 cm^2

Vectors

11. (8, 9)
12. 10
13. Yes (scalar multiples)
14. 11
15. (4, 8)
16. (7, 8)
17. 90°
18. (0.8, -0.6)
19. (-2, 5)
20. (1, 5)

Properties and Constructions

21. Rhombus has 4 equal sides, opposite equal angles, diagonals bisect each other at right angles.

22. Construct equal length sides with compass, connect vertices.
23. Draw line perpendicular at midpoint.
24. Triangles with two angles and included side equal (ASA) are congruent.
25. 65°
26. Opposite sides and angles equal; diagonals bisect; parallelogram is symmetrical.
27. By congruent triangles, diagonals are equal.
28. Use compass to bisect angle.
29. Scale factor -2 reflects and scales shape by 2.
30. Rotation order 4 means shape maps onto itself after 90° rotations.

Angles and Triangles

31. 70°
32. 135°
33. 70°
34. 27.3 cm^2
35. Use sine rule.
36. Use cosine rule.
37. 8 cm
38. Right angled ($6^2 + 8^2 = 10^2$).
39. 144°
40. 3240°

Circles and Circle Theorems

41. 43.96 cm
42. 14.14 cm
43. Angle equals angle in alternate segment.
44. 7 cm
45. 64°
46. Right angle (90°).

47. Equation: $(x+3)^2 + (y-4)^2 = 25$.
48. 14.13 cm^2
49. 12 cm
50. Opposite angles sum 180°.

Bearings and Coordinates

51. 45°
52. 8.06 units
53. 12.5 km
54. (6, 2)
55. (y, x) swap for reflection in y = x
56. y = 2x - 4
57. Gradient = -3/4
58. Scale vector by 2
59. (-3, 5)
60. (3, 4)

Perimeters and Areas

61. 42 cm
62. 96 cm^2
63. 30 cm^2
64. 32 cm
65. 127.23 cm^2
66. 69.12 cm
67. 153.86 cm^2
68. 48 cm^2, 48 cm
69. 42 cm
70. 216 cm^2

Volume and Surface Area

71. 565.49 cm^3
72. 375 cm^3
73. 678.58 cm^2
74. 523.6 cm^3
75. 615.75 cm^2
76. 600 cm^3
77. Radius ≈ 3 cm
78. 188.5 cm^2
79. 352 cm^2
80. 13 cm

Transformations

81. (-3, 5)
82. (-4, 6)
83. (4, 5)
84. (3, 3), (9, 3), (6, 9)
85. (2, 6)
86. (3, -7)
87. All points invariant under 360° rotation.
88. (7, 7)
89. Translation 4 right and scale 2
90. Translation vector (-5, -3)

Geometric Reasoning and Proof

91. Base angles of isosceles triangle are equal by definition.
92. Sum interior angles triangle is 180° by Euclidean geometry.
93. Diagonals of parallelogram bisect each other due to symmetry.

94. Exterior angle equals sum of opposite interior angles by angle sum property of triangles.

95. Opposite angles of cyclic quadrilateral sum to 180° by circle theorem.

96. RHS congruence: two right triangles with equal hypotenuse and one equal leg are congruent.

97. Diagonals of rectangle equal by congruency of triangles.

98. Each angle of equilateral triangle is 60°.

99. Diagonals of kite are perpendicular due to symmetry and side lengths.

100. Areas of similar triangles scale as squares of corresponding sides by similarity ratio.