Answers

1. 70°
2. 140°
3. 55°
4. 85°
5. 54°
6. 30°, 150°, 30° (two 30° and two 150°)
7. x = 70
8. 90°, 90°, 90° (all four are 90°)
9. 35°
10. Angles are 60° and 120° (smaller = 60°, larger = 120°)
11. 68°
12. 112°
13. 50° (since same-side interior sum = 180°, 180 - 130 = 50)
14. 47°
15. 23°
16. 95°
17. 56°
18. 106°
19. 90°, 90°, 90°, 90° (all four 90°)
20. 36°
21. 90°
22. 90°
23. 90°, 90°, 90°, 90°
24. 90°
25. 150° (supplement of 30° is 150°)
26. 90° (adjacent along the line would be 90° because perpendicular creates right angles)
27. The small angle should be 90° (there is no 35° at a perpendicular intersection; right angle is 90°)
28. 90°
29. 90°
30. 60° (complement of 30° is 60°)
31. x = 50; the given 110° partner is 110° ($2x + 10 = 110 \rightarrow x = 50$)

32. x = 25; angle = 70° (3x - 5 = 70 → x = 25)
33. x = 45; angle = 65° (x + 20 = 65 → x = 45)
34. x = 20; angles are 80° and 100° (4x = 80, 2x + 40 = 100)
35. x = 28; angles are 130° and 50° (5x - 10 = 130 → x = 28)
36. x = 60; (x + 15)° = 75° (complement of 75° is 15°, so x + 15 = 75 → x = 60)
37. x = 40; angle = 110° (2x + 30 = 110 → x = 40)
38. x = 20; (6x - 20)° = 100° (6x - 20 = 100 → x = 20)
39. x = 60; angle = 100° (x + 40 = 100 → x = 60)
40. x = 30; angle = 90° (3x = 90 → x = 30)
41. 128° (since 180 - 52 = 128)
42. 35°
43. 140°, 40°, 140°, 40° (one 140°, its vertical opposite 140°, two adjacent 40°)
44. 40°, 140°, 40° (one 40°, vertical opposite 40°, two adjacent 140°)
45. 52° (180 - 128 = 52)
46. 62°
47. Vertical opposite = 82°; the other two angles are 98° and 98° (82°, 82°, 98°, 98°)
48. 58°
49. Acute: 60°; Obtuse: 120°
50. 72° and 108° (angles in linear pair sum to 180; ratio 2:3 → 2k + 3k = 180 → k = 36; angles 72° and 108°)