

Chapter 9

1. The angle of elevation of a ladder leaning against a wall is 60 degrees. If the ladder reaches a point 10 meters high on the wall, what is the length of the ladder?

- a) 5 meters
- b) 10 meters
- c) 20 meters
- d) $10\sqrt{3}$ meters

Answer: c) 20 meters

2. The angle of depression from the top of a tower to a point on the ground is 45 degrees. If the tower is 20 meters high, how far is the point from the base of the tower?

- a) 10 meters
- b) 20 meters
- c) $20\sqrt{2}$ meters
- d) 40 meters

Answer: c) $20\sqrt{2}$ meters

3. In a right triangle, the angle of elevation from the ground to the top of a building is 30 degrees. If the distance from the observer to the building is 100 meters, what is the height of the building?

- a) 50 meters
- b) 100 meters
- c) 200 meters
- d) $100\sqrt{3}$ meters

Answer: d) $100\sqrt{3}$ meters

4. The angle of elevation of a helicopter from a point on the ground is 60 degrees. If the helicopter is flying at a height of 500 meters, how far is it from the point on the ground?

- a) 250 meters
- b) 500 meters
- c) $500\sqrt{3}$ meters

d) 1000 meters

Answer: c) $500\sqrt{3}$ meters

5. A flagpole casts a shadow 10 meters long when the angle of elevation of the sun is 45 degrees. What is the height of the flagpole?

a) 5 meters

b) 10 meters

c) $10\sqrt{2}$ meters

d) 20 meters

Answer: b) 10 meters

6. The angle of elevation of a balloon from a point on the ground is 75 degrees. If the balloon is flying at a height of 100 meters, how far is it from the point on the ground?

a) 20 meters

b) 40 meters

c) 100 meters

d) $100\sqrt{3}$ meters

Answer: b) 40 meters

7. A ladder is placed against a wall such that the angle between the ladder and the ground is 30 degrees. If the ladder is 10 meters long, how far is the base of the ladder from the wall?

a) 5 meters

b) 10 meters

c) 20 meters

d) $10\sqrt{3}$ meters

Answer: a) 5 meters

8. The angle of elevation of a cliff from a boat on the sea is 60 degrees. If the boat is 100 meters away from the base of the cliff, how high is the cliff?

a) 50 meters

b) 100 meters

c) $100\sqrt{3}$ meters

d) 200 meters

Answer: c) $100\sqrt{3}$ meters

9. The angle of depression from the top of a tower to a point on the ground is 30 degrees. If the height of the tower is 40 meters, how far is the point from the base of the tower?

a) 20 meters

b) 40 meters

c) 80 meters

d) $80\sqrt{3}$ meters

Answer: c) 80 meters

10. The angle of elevation of a kite from a point on the ground is 45 degrees. If the kite is flying at a height of 80 meters, how far is it from the point on the ground?

a) 40 meters

b) 80 meters

c) $80\sqrt{2}$ meters

d) 160 meters

Answer: b) 80 meters

11. The angle of depression from the top of a tower to a point on the ground is 60 degrees. If the height of the tower is 50 meters, how far is the point from the base of the tower?

a) 25 meters

b) 50 meters

c) $50\sqrt{3}$ meters

d) 100 meters

Answer: c) $50\sqrt{3}$ meters

12. In a right triangle, the angle of elevation from the ground to the top of a building is 45 degrees. If the distance from the observer to the building is 80 meters, what is the height of the building?

a) 40 meters

b) 80 meters

c) $80\sqrt{2}$ meters

d) 160 meters

Answer: c) $80\sqrt{2}$ meters

13. A pole casts a shadow 12 meters long when the angle of elevation of the sun is 30 degrees. What is the height of the pole?

a) 6 meters

b) 12 meters

c) $12\sqrt{3}$ meters

d) 24 meters

Answer: c) $12\sqrt{3}$ meters

14. The angle of elevation of a helicopter from a point on the ground is 75 degrees. If the helicopter is flying at a height of 200 meters, how far is it from the point on the ground?

a) 100 meters

b) 200 meters

c) $200\sqrt{3}$ meters

d) 400 meters

Answer: c) $200\sqrt{3}$ meters

15. A ladder is placed against a wall such that the angle between the ladder and the ground is 60 degrees. If the ladder is 12 meters long, how far is the base of the ladder from the wall?

a) 6 meters

b) 12 meters

c) 24 meters

d) $12\sqrt{3}$ meters

Answer: c) 24 meters

16. The angle of depression of a car traveling on a straight road from the top of a tower is 45 degrees. If the height of the tower is 60 meters, how far is the car from the base of the tower?

a) 30 meters

b) 60 meters

c) $60\sqrt{2}$ meters

d) 120 meters

Answer: c) $60\sqrt{2}$ meters

17. The angle of elevation of a hot air balloon from a point on the ground is 60 degrees. If the balloon is flying at a height of 150 meters, how far is it from the point on the ground?

a) 75 meters

b) 150 meters

c) $150\sqrt{3}$ meters

d) 300 meters

Answer: c) $150\sqrt{3}$ meters

18. The angle of depression from the top of a tower to a point on the ground is 45 degrees. If the height of the tower is 30 meters, how far is the point from the base of the tower?

a) 15 meters

b) 30 meters

c) $30\sqrt{2}$ meters

d) 60 meters

Answer: c) $30\sqrt{2}$ meters

19. The angle of elevation of a bird from a point on the ground is 30 degrees. If the bird is flying at a height of 40 meters, how far is it from the point on the ground?

a) 20 meters

b) 40 meters

c) $40\sqrt{3}$ meters

d) 80 meters

Answer: c) $40\sqrt{3}$ meters

20. The angle of depression from the top of a tower to a point on the ground is 60 degrees. If the height of the tower is 20 meters, how far is the point from the base of the tower?

a) 10 meters

b) 20 meters

c) $20\sqrt{3}$ meters

d) 40 meters

Answer: b) 20 meters

21. In a right triangle, the angle of elevation from the ground to the top of a building is 60 degrees. If the distance from the observer to the building is 120 meters, what is the height of the building?

a) 60 meters

b) 120 meters

c) $120\sqrt{3}$ meters

d) 240 meters

Answer: c) $120\sqrt{3}$ meters

22. A flagpole casts a shadow 16 meters long when the angle of elevation of the sun is 60 degrees. What is the height of the flagpole?

a) 8 meters

b) 16 meters

c) $16\sqrt{3}$ meters

d) 32 meters

Answer: c) $16\sqrt{3}$ meters

23. The angle of elevation of a helicopter from a point on the ground is 45 degrees. If the helicopter is flying at a height of 300 meters, how far is it from the point on the ground?

a) 150 meters

b) 300 meters

c) $300\sqrt{2}$ meters

d) 600 meters

Answer: c) $300\sqrt{2}$ meters

24. A ladder is placed against a wall such that the angle between the ladder and the ground is 45 degrees. If the ladder is 15 meters long, how far is the base of the ladder from the wall?

a) 7.5 meters

b) 15 meters

c) $15\sqrt{2}$ meters

d) 30 meters

Answer: b) 15 meters

25. The angle of depression of a car traveling on a straight road from the top of a tower is 30 degrees. If the height of the tower is 50 meters, how far is the car from the base of the tower?

a) 25 meters

b) 50 meters

c) $50\sqrt{3}$ meters

d) 100 meters

Answer: c) $50\sqrt{3}$ meters

26. The angle of elevation of a hot air balloon from a point on the ground is 75 degrees. If the balloon is flying at a height of 250 meters, how far is it from the point on the ground?

a) 125 meters

b) 250 meters

c) $250\sqrt{3}$ meters

d) 500 meters

Answer: c) $250\sqrt{3}$ meters

27. The angle of depression from the top of a tower to a point on the ground is 30 degrees. If the height of the tower is 40 meters, how far is the point from the base of the tower?

a) 20 meters

b) 40 meters

c) $40\sqrt{3}$ meters

d) 80 meters

Answer: c) $40\sqrt{3}$ meters

28. The angle of elevation of a tower from a point on the ground is 60 degrees. If the observer moves 20 meters towards the tower, the angle of elevation becomes 75 degrees. What is the height of the tower?

a) 20 meters

b) 30 meters

c) 40 meters

d) 60 meters

Answer: b) 30 meters

29. The angle of depression from the top of a tower to a point on the ground is 45 degrees. If the height of the tower is 60 meters, how far is the point from the base of the tower?

a) 30 meters

b) 60 meters

c) $60\sqrt{2}$ meters

d) 120 meters

Answer: c) $60\sqrt{2}$ meters

30. In a right triangle, the angle of elevation from the ground to the top of a building is 45 degrees. If the distance from the observer to the building is 100 meters, what is the height of the building?

a) 50 meters

b) 100 meters

c) $100\sqrt{2}$ meters

d) 200 meters

Answer: c) $100\sqrt{2}$ meters

31. A flagpole casts a shadow 15 meters long when the angle of elevation of the sun is 60 degrees. What is the height of the flagpole?

a) 7.5 meters

b) 15 meters

c) $15\sqrt{3}$ meters

d) 30 meters

Answer: c) $15\sqrt{3}$ meters

32. The angle of elevation of a helicopter from a point on the ground is 45 degrees. If the helicopter is flying at a height of 200 meters, how far is it from the point on the ground?

a) 100 meters

b) 200 meters

c) $200\sqrt{2}$ meters

d) 400 meters

Answer: c) $200\sqrt{2}$ meters

33. A ladder is placed against a wall such that the angle between the ladder and the ground is 30 degrees. If the ladder is 10 meters long, how far is the base of the ladder from the wall?

a) 5 meters

b) 10 meters

c) $10\sqrt{3}$ meters

d) 20 meters

Answer: c) $10\sqrt{3}$ meters

34. The angle of depression of a car traveling on a straight road from the top of a tower is 60 degrees. If the height of the tower is 50 meters, how far is the car from the base of the tower?

a) 25 meters

b) 50 meters

c) $50\sqrt{3}$ meters

d) 100 meters

Answer: c) $50\sqrt{3}$ meters

35. The angle of elevation of a hot air balloon from a point on the ground is 75 degrees. If the balloon is flying at a height of 150 meters, how far is it from the point on the ground?

a) 75 meters

b) 150 meters

c) $150\sqrt{3}$ meters

d) 300 meters

Answer: c) $150\sqrt{3}$ meters

36. The angle of depression from the top of a tower to a point on the ground is 30 degrees. If the height of the tower is 40 meters, how far is the point from the base of the tower?

a) 20 meters

b) 40 meters

c) $40\sqrt{3}$ meters

d) 80 meters

Answer: c) $40\sqrt{3}$ meters

37. The angle of elevation of a tower from a point on the ground is 45 degrees. If the observer moves 15 meters towards the tower, the angle of elevation becomes 60 degrees. What is the height of the tower?

a) 15 meters

b) 30 meters

c) 45 meters

d) 60 meters

Answer: c) 45 meters

38. The angle of depression from the top of a tower to a point on the ground is 60 degrees. If the height of the tower is 50 meters, how far is the point from the base of the tower?

a) 25 meters

b) 50 meters

c) $50\sqrt{3}$ meters

d) 100 meters

Answer: c) $50\sqrt{3}$ meters

39. In a right triangle, the angle of elevation from the ground to the top of a building is 30 degrees. If the distance from the observer to the building is 100 meters, what is the height of the building?

a) 50 meters

b) 100 meters

c) $100\sqrt{3}$ meters

d) 200 meters

Answer: a) 50 meters

40. A flagpole casts a shadow 10 meters long when the angle of elevation of the sun is 45 degrees. What is the height of the flagpole?

a) 5 meters

b) 10 meters

c) $10\sqrt{2}$ meters

d) 20 meters

Answer: b) 10 meters

41. The angle of elevation of a helicopter from a point on the ground is 60 degrees. If the helicopter is flying at a height of 150 meters, how far is it from the point on the ground?

a) 75 meters

b) 150 meters

c) $150\sqrt{3}$ meters

d) 300 meters

Answer: c) $150\sqrt{3}$ meters

42. A ladder is placed against a wall such that the angle between the ladder and the ground is 45 degrees. If the ladder is 12 meters long, how far is the base of the ladder from the wall?

a) 6 meters

b) 12 meters

c) $12\sqrt{2}$ meters

d) 24 meters

Answer: b) 12 meters

43. The angle of depression of a car traveling on a straight road from the top of a tower is 30 degrees. If the height of the tower is 40 meters, how far is the car from the base of the tower?

a) 20 meters

b) 40 meters

c) $40\sqrt{3}$ meters

d) 80 meters

Answer: b) 40 meters

44. The angle of elevation of a hot air balloon from a point on the ground is 75 degrees. If the balloon is flying at a height of 200 meters, how far is it from the point on the ground?

a) 100 meters

b) 200 meters

c) $200\sqrt{3}$ meters

d) 400 meters

Answer: c) $200\sqrt{3}$ meters

45. The angle of depression from the top of a tower to a point on the ground is 45 degrees. If the height of the tower is 30 meters, how far is the point from the base of the tower?

a) 15 meters

b) 30 meters

c) $30\sqrt{2}$ meters

d) 60 meters

Answer: c) $30\sqrt{2}$ meters

46. The angle of elevation of a tower from a point on the ground is 60 degrees. If the observer moves 10 meters towards the tower, the angle of elevation becomes 75 degrees. What is the height of the tower?

a) 10 meters

b) 20 meters

c) 30 meters

d) 40 meters

Answer: b) 20 meters

47. The angle of depression from the top of a tower to a point on the ground is 30 degrees. If the height of the tower is 50 meters, how far is the point from the base of the tower?

a) 25 meters

b) 50 meters

c) $50\sqrt{3}$ meters

d) 100 meters

Answer: c) $50\sqrt{3}$ meters

48. In a right triangle, the angle of elevation from the ground to the top of a building is 45 degrees. If the distance from the observer to the building is 80 meters, what is the height of the building?

a) 40 meters

- b) 80 meters
- c) $80\sqrt{2}$ meters
- d) 160 meters

Answer: c) $80\sqrt{2}$ meters

49. A flagpole casts a shadow 12 meters long when the angle of elevation of the sun is 60 degrees. What is the height of the flagpole?

- a) 6 meters
- b) 12 meters
- c) $12\sqrt{3}$ meters
- d) 24 meters

Answer: c) $12\sqrt{3}$ meters

50. The angle of depression of a car traveling on a straight road from the top of a tower is 45 degrees. If the height of the tower is 40 meters, how far is the car from the base of the tower?

- a) 20 meters
- b) 40 meters
- c) $40\sqrt{2}$ meters
- d) 80 meters

Answer: b) 40 meters