Chapter - 12

Areas Related to Circles

1. Which of the following is the formula to calculate the circumference of a circle?

   a) $C = 2\pi r$

   b) $C = \pi r^2$

   c) $C = \pi d$

   d) $C = r/d$

   Answer: a) $C = 2\pi r$

2. The area of a circle with radius 5 cm is:

   a) 25π cm^2

   b) 10π cm^2

   c) 5π cm^2

   d) 20π cm^2

   Answer: a) 25π cm^2

3. The radius of a circle is 7 cm. What is the diameter of the circle?

   a) 3.5 cm

   b) 7 cm

   c) 14 cm

   d) 21 cm

Answer: c) 14 cm

4. The area of a sector of a circle with central angle 60° and radius 8 cm is:

a) 16π cm^2

b) 24π cm^2

c) 48π cm^2

d) 32π cm^2

Answer: b) 24π cm^2

5. If the circumference of a circle is 44 cm, what is its radius?

a) 11 cm

b) 22 cm

c) 7 cm

d) 14 cm

Answer: a) 11 cm

6. The length of an arc of a circle with central angle 45° and radius 10 cm is:

a) 5π cm

b) 10π cm

c) 20π cm

d) 45π cm

Answer: a) 5π cm

7. The perimeter of a semicircle with radius 14 cm is:

a) 44 cm

b) 28 cm

c) 22 cm

d) 42 cm

Answer: d) 42 cm

8. The area of a circle is 154 cm^2. What is its radius?

a) 7 cm

b) 14 cm

c) 22 cm

d) 28 cm

Answer: a) 7 cm

9. The length of a chord in a circle is equal to the radius of the circle. What is the measure of the central angle subtended by the chord?

a) 30°

b) 45°

c) 60°

d) 90°

Answer: c) 60°

10. The ratio of the areas of two circles is 4:9. What is the ratio of their radii?

a) 2:3

b) 4:9

c) 1:2

d) 3:2

Answer: a) 2:3

11. The area of a circle is 154 cm^2. What is its diameter?

a) 7 cm

b) 14 cm

c) 22 cm

d) 28 cm

Answer: c) 22 cm

12. The circumference of a circle is 44 cm. What is its area?

a) 154 cm^2

b) 242 cm^2

c) 308 cm^2

d) 484 cm^2

Answer: b) 242 cm^2

13. The length of an arc of a circle with central angle 120° and radius 15 cm is:

a) 15π cm

b) 30π cm

c) 60π cm

d) 120π cm

Answer: b) 30π cm

14. If the radius of a circle is doubled, what happens to its area?

a) Doubles

b) Triples

c) Quadruples

d) Halves

Answer: c) Quadruples

15. The area of a sector of a circle with central angle 30° and radius 6 cm is:

a) 3π cm^2

b) 6π cm^2

c) 9π cm^2

d) 12π cm^2

Answer: a) 3π cm^2

16. The circumference of a circle is 66 cm. What is its radius?

a) 11 cm

b) 22 cm

c) 33 cm

d) 44 cm

Answer: b) 22 cm

17. The diameter of a circle is 10 cm. What is its circumference?

a) 10π cm

b) 20π cm

c) 30π cm

d) 40π cm

Answer: b) 20π cm

18. The length of a chord in a circle is equal to the diameter of the circle. What is the measure of the central angle subtended by the chord?

a) 60°

b) 90°

c) 120°

d) 180°

Answer: b) 90°

19. The ratio of the areas of two circles is 1:16. What is the ratio of their radii?

a) 1:4

b) 1:8

c) 1:16

d) 1:2

Answer: b) 1:4

20. The area of a semicircle with diameter 12 cm is:

a) 18π cm^2

b) 24π cm^2

c) 36π cm^2

d) 72π cm^2

Answer: a) 18π cm^2

21. The ratio of the circumference of two circles is 2:5. What is the ratio of their radii?

a) 1:2

b) 2:5

c) 5:2

d) 2:√5

Answer: b) 2:5

22. The radius of a circle is 9 cm. What is its area?

a) 27π cm^2

b) 81π cm^2

c) 162π cm^2

d) 324π cm^2

Answer: b) 81π cm^2

23. The length of an arc of a circle with central angle 150° and radius 12 cm is:

a) 15π cm

b) 30π cm

c) 36π cm

d) 45π cm

Answer: d) 45π cm

24. The area of a sector of a circle with radius 10 cm and central angle 72° is:

a) 20π cm^2

b) 40π cm^2

c) 80π cm^2

d) 120π cm^2

Answer: b) 40π cm^2

25. The circumference of a circle is 88 cm. What is its diameter?

a) 14 cm

b) 28 cm

c) 44 cm

d) 56 cm

Answer: c) 44 cm

26. The radius of a circle is tripled. What happens to its circumference?

a) Triples

b) Doubles

c) Quadruples

d) Halves

Answer: b) Doubles

27. The area of a circle is 154 cm^2. What is its circumference?

a) 22 cm

b) 44 cm

c) 66 cm

d) 88 cm

Answer: c) 66 cm

28. The diameter of a circle is 16 cm. What is its radius?

a) 4 cm

b) 8 cm

c) 12 cm

d) 16 cm

Answer: b) 8 cm

29. The length of a chord in a circle is equal to the radius of the circle. What is the measure of the central angle subtended by the chord?

a) 30°

b) 45°

c) 60°

d) 90°

Answer: d) 90°

30. The ratio of the areas of two circles is 1:25. What is the ratio of their radii?

a) 1:5

b) 1:10

c) 1:25

d) 1:√5

Answer: a) 1:5

31. The length of an arc of a circle with central angle 45° and radius 7 cm is:

a) 3.5π cm

b) 7π cm

c) 10.5π cm

d) 15π cm

Answer: a) 3.5π cm

32. The radius of a circle is 5 cm. What is its circumference?

a) 10π cm

b) 15π cm

c) 20π cm

d) 25π cm

Answer: c) 20π cm

33. The area of a sector of a circle with radius 12 cm and central angle 120° is:

a) 24π cm^2

b) 36π cm^2

c) 48π cm^2

d) 72π cm^2

Answer: b) 36π cm^2

34. The circumference of a circle is 66 cm. What is its diameter?

a) 21 cm

b) 33 cm

c) 42 cm

d) 66 cm

Answer: b) 33 cm

35. The radius of a circle is doubled. What happens to its area?

a) Doubles

b) Triples

c) Quadruples

d) Halves

Answer: c) Quadruples

36. The area of a circle is 616 cm^2. What is its radius?

a) 7 cm

b) 14 cm

c) 21 cm

d) 28 cm

Answer: b) 14 cm

37. The length of a chord in a circle is equal to the diameter of the circle. What is the measure of the central angle subtended by the chord?

a) 60°

b) 90°

c) 120°

d) 180°

Answer: d) 180°

38. The ratio of the areas of two circles is 9:64. What is the ratio of their radii?

a) 3:8

b) 9:16

c) 3:4

d) 27:64

Answer: c) 3:4

39. The area of a semicircle with diameter 10 cm is:

a) 25π cm^2

b) 20π cm^2

c) 15π cm^2

d) 10π cm^2

Answer: a) 25π cm^2

40. The circumference of a circle is 88 cm. What is its radius?

a) 14 cm

b) 28 cm

c) 44 cm

d) 56 cm

Answer: a) 14 cm

41. The length of an arc of a circle with central angle 75° and radius 9 cm is:

a) 6.75π cm

b) 9.75π cm

c) 13.5π cm

d) 20.25π cm

Answer: c) 13.5π cm

42. The radius of a circle is 8 cm. What is its circumference?

a) 16π cm

b) 32π cm

c) 48π cm

d) 64π cm

Answer: b) 32π cm

43. The area of a sector of a circle with central angle 150° and radius 16 cm is:

a) 60π cm^2

b) 80π cm^2

c) 120π cm^2

d) 240π cm^2

Answer: c) 120π cm^2

44. The circumference of a circle is 88 cm. What is its diameter?

a) 14 cm

b) 22 cm

c) 28 cm

d) 44 cm

Answer: b) 22 cm

45. The radius of a circle is tripled. What happens to its area?

a) Triples

b) Doubles

c) Quadruples

d) Becomes nine times

Answer: d) Becomes nine times

46. The area of a circle is 616 cm^2. What is its diameter?

a) 14 cm

b) 28 cm

c) 35 cm

d) 56 cm

Answer: c) 35 cm

47. The length of a chord in a circle is equal to the radius of the circle. What is the measure of the central angle subtended by the chord?

a) 60°

b) 90°

c) 120°

d) 180°

Answer: b) 90°

48. The ratio of the areas of two circles is 9:64. What is the ratio of their circumferences?

a) 3:8

b) 9:16

c) 3:4

d) 27:64

Answer: a) 3:8

49. The area of a semicircle with diameter 12 cm is:

a) 18π cm^2

b) 24π cm^2

c) 36π cm^2

d) 72π cm^2

Answer: b) 24π cm^2

50. The circumference of a circle is 154 cm. What is its radius?

a) 7 cm

b) 14 cm

c) 22 cm

d) 44 cm

Answer: b) 14 cm