

MATHEMATICS**CLASS 9****Chapter 6: "Measuring Space: Perimeter and Area"****WORKSHEET**

Name: _____

Class/Section: _____

Date: _____

Instructions: Choose the correct option (A, B, C or D) for each question.

Q1. The perimeter of a circle is also known as its:

- (a) Area (b) Volume (c) Circumference (d) Diameter

Q2. The value of π (pi) is a/an:

- (a) Rational number (b) Irrational number
(c) Integer (d) Whole number

Q3. The formula for the arc length of a circle with radius r and central angle θ is:

- (a) $(\theta/360) \times \pi r^2$ (b) $(\theta/180) \times \pi r$
(c) $(\theta/360) \times 2\pi r$ (d) $(\theta/360) \times \pi r$

Q4. What is the perimeter of a sector of a circle with radius r and arc length L ?

- (a) $L + r$ (b) $L + 2r$ (c) $L + \pi r$ (d) $2L + r$

Q5. The area of a parallelogram is given by:

- (a) base $\times$ height (b) $1/2 \times$ base $\times$ height
(c) $2 \times$ (base + height) (d) base / height

Q6. Heron's formula for calculating the area of a triangle with sides a , b , c and semi-perimeter s is:

- (a) $\sqrt{[s(s+a)(s+b)(s+c)]}$ (b) $\sqrt{[(s-a)(s-b)(s-c)]}$
(c) $\sqrt{[s(s-a)(s-b)(s-c)]}$ (d) $s(s-a)(s-b)(s-c)$

Q7. What does ' s ' represent in Heron's formula?

- (a) Sum of sides (b) Semi-perimeter

- (c) Side of the triangle (d) Area

Q8. Brahmagupta's formula $\sqrt{[(s-a)(s-b)(s-c)(s-d)]}$ is used to find the area of a:

- (a) Parallelogram (b) Cyclic quadrilateral
(c) Rhombus (d) Kite

Q9. In an athletics race track, the distance between the starting points of adjacent lanes is called the:

- (a) Stride (b) Stagger (c) Gap (d) Relay

Q10. If the ratio of the radii of two circles is 3:4, what is the ratio of their circumferences?

- (a) 9:16 (b) 3:4 (c) 4:3 (d) $\sqrt{3} : 2$

Q11. The formula for the area of a sector of a circle with radius r and angle θ is:

- (a) $(\theta/360) \times 2\pi r$ (b) $(\theta/360) \times \pi r^2$
(c) $(\theta/180) \times \pi r^2$ (d) $(\theta/360) \times 2\pi r^2$

Q12. If the circumference of a circle is 44 cm, find its radius. (Use $\pi = 22/7$)

- (a) 7 cm (b) 14 cm (c) 22 cm (d) 44 cm

Q13. Two parallelograms on the same base and between the same parallel lines are equal in:

- (a) Perimeter (b) Area (c) Shape (d) Length of diagonals

Q14. A triangle and a parallelogram are on the same base and between the same parallels. The ratio of the area of the triangle to the area of the parallelogram is:

- (a) 1:1 (b) 2:1 (c) 1:2 (d) 1:4

Q15. The area of a triangle whose sides are 8 cm, 11 cm, and 13 cm is best calculated using:

- (a) Pythagoras Theorem (b) Heron's Formula
(c) Brahmagupta's Formula (d) Euler's Formula

Q16. Which Indian mathematician used an infinite series to calculate π to 11 decimal places?

- (a) Aryabhata (b) Brahmagupta
(c) Madhava (d) Ramanujan

Q17. What is the area of a quadrant of a circle of radius r ?

- (a) πr^2 (b) $\frac{1}{2} \pi r^2$
(c) $\frac{1}{4} \pi r^2$ (d) $\frac{1}{3} \pi r^2$

Q18. The fact that a square and a differently shaped rectangle can have equal areas is a concept related to the:

- (a) Bolyai–Gerwien theorem (b) Pythagoras theorem
(c) Thales theorem (d) Remainder theorem

Q19. The digits of the decimal expansion of π go on forever with:

- (a) A repeating rhythmic pattern (b) No visible pattern
(c) Alternating zeros and ones (d) A finite end

Q20. What happens to the perimeter of a square if its side length is doubled?

- (a) It remains the same (b) It doubles
(c) It quadruples (d) It is halved

Q21. If the area of a rhombus is 128 cm^2 and one diagonal is twice the length of the other, what is the length of the shorter diagonal?

- (a) 8 cm (b) $8\sqrt{2}$ cm (c) 16 cm (d) $16\sqrt{2}$ cm

Q22. The parallel sides of a trapezium are 40 cm and 20 cm, and the height is 24 cm. Its area is:

- (a) 720 cm^2 (b) 1440 cm^2 (c) 360 cm^2 (d) 480 cm^2

Q23. The ratio of circumference to diameter (C/D) of any circle is a constant denoted by:

- (a) α (b) θ (c) π (d) φ

Q24. The area of a triangle with base 10 cm and height 8 cm is:

- (a) 80 cm^2 (b) 40 cm^2 (c) 20 cm^2 (d) 60 cm^2

Q25. A triangle has sides 8 cm, 11 cm, and a perimeter of 32 cm. What is the length of the third side?

- (a) 11 cm (b) 12 cm (c) 13 cm (d) 14 cm

Answer Key

Question No.	Correct Answer
1	(c) Circumference
2	(b) Irrational number
3	(c) $(\theta/360) \times 2\pi r$
4	(b) $L + 2r$
5	(a) base $\times$ height
6	(c) $\sqrt{s(s-a)(s-b)(s-c)}$
7	(b) Semi-perimeter
8	(b) Cyclic quadrilateral
9	(b) Stagger
10	(b) 3:4
11	(b) $(\theta/360) \times \pi r^2$
12	(a) 7 cm
13	(b) Area
14	(c) 1:2
15	(b) Heron's Formula
16	(c) Madhava
17	(c) $1/4 \pi r^2$
18	(a) Bolyai-Gerwien theorem
19	(b) No visible pattern
20	(b) It doubles
21	(b) $8\sqrt{2}$ cm
22	(a) 720 cm^2
23	(c) π
24	(b) 40 cm^2
25	(c) 13 cm