

CHAPTER-7 | Area

QUIZ
PART-07

1. How can the triangle-area formula be derived using a rectangle or parallelogram?
- A rectangle can be formed without changing any side
 - One triangle always equals any rectangle
 - A triangle's perimeter equals a rectangle's area
 - Two copies of the triangle form a rectangle or parallelogram of twice its area (D)

Explanation: The combined area of the two copies is bh , so one triangle has area $\frac{1}{2}bh$.

2. A triangle has base 12 cm and height 7 cm. What is its area?
- 21 cm²
 - 19 cm²
 - 42 cm²
 - 84 cm² (C)

Explanation: $\frac{1}{2} \times 12 \times 7 = 42 \text{ cm}^2$.

3. Two triangles have the same base 12 cm and height 7 cm but different shapes. Their areas are:
- One is double the other
 - Impossible to determine
 - Different
 - The same (D)

Explanation: Both have area $\frac{1}{2} \times 12 \times 7$.

4. Does the formula $\frac{1}{2}bh$ apply to an obtuse triangle?
- Only when the altitude lies inside
 - Yes, using the perpendicular height to the base or its extension
 - No, it applies only to right triangles
 - Only when all sides are equal (B)

Explanation: The altitude may meet an extension of the base.

5. A triangle has area 30 cm² and base 10 cm. What is its height?
- 10 cm
 - 6 cm
 - 3 cm
 - 15 cm (B)

Explanation: $30 = \frac{1}{2} \times 10 \times h$, so $h = 6 \text{ cm}$.

6. A triangle has area 24 square units and height 8 units. What is its base?
- 6 units
 - 3 units
 - 12 units
 - 8 units (A)

Explanation: $24 = \frac{1}{2} \times b \times 8$, so $b = 6$.

7. If both the base and height of a triangle double, by what factor does the area change?
- 2
 - 8
 - 4
 - 6 (D)

Explanation: $\frac{1}{2} (2b)(2h) = 4(\frac{1}{2}bh)$.

8. Why is a triangle's area half of $b \times h$?
- A matching copy completes a parallelogram or rectangle of area bh
 - Every triangle is half a square
 - Its three sides add to bh
 - Its altitude is always half its base (A)

Explanation: The two congruent triangles together cover an area bh .

9. When an altitude falls outside an obtuse triangle, where is it drawn?
- Parallel to the base
 - Perpendicular to the extended base line
 - Along the longest side
 - Through the midpoint of every side (B)

Explanation: The base line is extended until it meets the perpendicular altitude.

10. A triangle has base 15 cm and height 4 cm. Which rectangle has exactly twice its area?
- 15 cm $\times$ 4 cm
 - 19 cm $\times$ 1 cm
 - 15 cm $\times$ 2 cm
 - 7.5 cm $\times$ 4 cm (A)

Explanation: Triangle area is 30 cm²; the rectangle has area 60 cm².