1. A triangle has base 5 units and height 4 units. The same triangle is described using base 4 units and altitude BY. What is BY?
   A. 3 units B. 6 units
   C. 5 units D. 4 units (C)

Explanation : Area $=\frac{1}{2}\times5\times4=10$. Therefore, $\frac{1}{2}\times4\times BY=10$, giving BY=5.

2. A rectangle is 8 cm long and 6 cm wide. Its diagonals divide it into four equal-area triangles. What is the area of each?
   A. 24 cm^2 B. 20 cm^2
   C. 18 cm^2 D. 12 cm^2 (D)

Explanation: Rectangle area $= 48\ cm^2$, and $48 \div 4 = 12cm^2$.

3. Why do the four triangles formed by the diagonals of a rectangle have equal areas?
   A. Each triangle has the same perimeter
   B. The diagonals bisect each other and create equal base-height pairs
   C. All sides of the rectangle are equal
   D. All four triangles are equilateral (B)

Explanation: The intersection is the midpoint of both diagonals.

4. A line joins a vertex of a triangle to the midpoint of the opposite side. How does it divide the area?
   A. Into two equal-area triangles
   B. It does not divide the triangle
   C. Into three equal areas
   D. In the ratio 1:2 (A)

Explanation: The two smaller triangles have equal bases and the same height.

5. A triangle has total area 50 cm^2. A median divides it into two triangles. What is the area of each?
   A. 25 cm^2 B. 20 cm^2
   C. 50 cm^2 D. 10 cm^2 (A)

Explanation : A median divides a triangle into two equal-area regions.

6. Two triangles have the same altitude and equal bases. Which conclusion is correct?
   A. They must be right triangles
   B. Their perimeters are equal
   C. Their areas are equal
   D. They are congruent (C)

Explanation : Both have the same value of $\frac{1}{2}$ bh.

7. A rectangle has area 72 cm^2. What is the area of each of the four triangles formed by its diagonals?
   A. 24 cm^2
   B. 18 cm^2
   C. 12 cm^2
   D. 36 cm^2 (B)

Explanation : $72\div4=18\ cm^2$.

8. A median divides a side of length 14 cm into which lengths?
   A. 7 cm and 7 cm
   B. 5 cm and 9 cm
   C. 14 cm and 14 cm
   D. 6 cm and 8 cm (A)

Explanation : A median meets the midpoint of the opposite side.

9. If two triangles have the same height and their bases are in the ratio 3:5, what is the ratio of their areas?
   A. 5:3 B. 1:1
   C. 9:25 D. 3:5 (D)

Explanation : With equal heights, areas are proportional to their bases.

10. Which property is used to compare triangles formed inside a rectangle by its diagonals?
    A. Equal perimeter always gives equal area
    B. Equal bases and equal corresponding heights give equal areas
    C. Parallel sides make all triangles congruent
    D. Every diagonal equals a side (B)

Explanation : The triangle-area formula is used to establish equality.