1. What is the value of semi-perimeter 's' for a triangle with sides 40 m, 32 m, and 24 m?

   A. 48 m  B. 50 m

   C. 46 m  D. 45 m  (A)

*Explanation :* s = (40 + 32 + 24)/2 = 96/2 = 48 m

2. Which of the following represents Heron's Formula for the area of a triangle?

   A. s(s + a)(s + b)(s + c)  B. s(s - a)(s - b)(s - c)

   C. (s - a)(s - b)(s - c)/s  D. $s^2$ - abc  (B)

*Explanation :* Heron's formula is Area = √[s(s - a)(s - b)(s - c)]

3. What is the area of an equilateral triangle with side 10 cm using Heron's formula?

   A. $25\sqrt{3}$ $cm^2$  B. 50 $cm^2$

   C. 30 $cm^2$  D. $20\sqrt{3}$ $cm^2$  (A)

*Explanation :* s = 15, area = √[15(15-10)(15-10)(15-10)] = $25\sqrt{3}$ $cm^2$

4. What type of triangle has sides 40 m, 32 m, and 24 m?

   A. Equilateral  B. Right-angled

   C. Isosceles  D. Obtuse-angled  (B)

*Explanation :* Using Pythagoras: $32^2 + 24^2 = 40^2$, hence it is a right-angled triangle.

5. If the sides of a triangle are 8 cm, 11 cm, and 13 cm, what is its perimeter?

   A. 30 cm  B. 32 cm

   C. 34 cm  D. 28 cm  (B)

*Explanation :* Perimeter = 8 + 11 + 13 = 32 cm

6. What is the cost of fencing a triangular park of perimeter 250 m with ₹20 per metre wire, leaving a 3 m gate?

   A. ₹5000  B. ₹4940

   C. ₹4920  D. ₹5100  (B)

*Explanation :* Wire needed = 250 - 3 = 247 m, cost = 247 × 20 = ₹4940

7. In the triangle with sides 60 m, 100 m, and 140 m, what is the semi-perimeter?

   A. 130 m  B. 150 m

   C. 120 m  D. 160 m  (B)

*Explanation :* s = (60 + 100 + 140)/2 = 150 m

8. For a triangle with s = 16 cm, a = 8 cm, b = 11 cm, c = 13 cm, what is s - a?

   A. 9 cm  B. 7 cm

   C. 8 cm  D. 6 cm  (C)

*Explanation :* s - a = 16 - 8 = 8 cm

9. Which mathematician gave the formula for the area of a triangle in terms of its sides?

   A. Euclid  B. Heron

   C. Pythagoras  D. Archimedes  (B)

*Explanation :* Heron of Alexandria derived the formula known as Heron's formula.

10. If perimeter of a triangle is 540 cm and its sides are in ratio 12 : 17 : 25, what is the longest side?

    A. 180 cm  B. 150 cm

    C. 200 cm  D. 210 cm  (A)

*Explanation :* Total parts = 12+17+25 = 54; Each part = 540/54 = 10, so longest side = 25×10 = 250 cm