1. Triangles standing on the same base and between the same parallel lines have:
   A. Equal side lengths
   B. Equal areas
   C. Equal perimeters
   D. Equal angles (B)

Explanation : They have the same base and equal perpendicular height.

2. Several triangles share base BC and have their third vertices on a line parallel to BC. Which has the maximum area?
   A. The rightmost triangle
   B. All have the same area
   C. The triangle with the longest sloping side
   D. The leftmost triangle (B)

Explanation: Their bases and heights are equal.

3. For triangles on the same base and between the same parallels, what can vary even though area remains fixed?
   A. Perpendicular height B. Area
   C. Base length D. Perimeter (D)

Explanation: The lengths of the sloping sides may change.

4. Where should the third vertex lie to give the least perimeter for a triangle with fixed base BC and constrained to a parallel line?
   A. Directly above C
   B. At the farthest end of the line
   C. Directly above B
   D. On the perpendicular bisector of BC (D)

Explanation: This symmetric position minimises the sum of the two sloping sides.

5. Why does reflection help identify the shortest broken path AB+AC?
   A. It converts the broken path into a straight-line distance
   B. It makes all perimeters equal
   C. It makes the base longer
   D. It doubles the area (A)

Explanation : A straight line is the shortest distance between two points.

6. If B is reflected across a line to B′ and A lies on the reflecting line, how do AB and AB′ compare?
   A. AB=AB′
   B. They cannot be compared
   C. AB is always shorter
   D. AB=2AB′ (A)

Explanation : A point on a mirror line is equally distant from a point and its reflection.

7. At the minimum-perimeter position, how do the two sloping sides compare?
   A. They are equal
   B. One is double the other
   C. Both are parallel to the base
   D. Both are zero (A)

Explanation : The vertex lies on the perpendicular bisector of the base.

8. A fixed base is 10 cm and the distance between the parallel lines is 6 cm. What is the area of every triangle formed?
   A. 80 cm^2 B. 60 cm^2
   C. 30 cm^2 D. 16 cm^2 (C)

Explanation : $\frac{1}{2} \times 10 \times 6 = 30\ cm^2$.

9. If the third vertex moves along the parallel line, what happens to the altitude to the fixed base?
   A. It becomes zero
   B. It equals the perimeter
   C. It remains constant
   D. It increases continuously (C)

Explanation : The distance between two parallel lines is constant.

10. Which statement is correct for these equal-area triangles?
    A. Equal area always implies congruence
    B. Equal area does not imply equal perimeter
    C. Equal area forces equal angles
    D. Equal area means equal sloping sides (B)

Explanation : The vertex position can change the side lengths without changing the area.