Activity 8 — Midsegment of a Triangle Theorem

Objectives

This activity is designed to help students discover the following:

✔ *The triangle midsegment theorem: If a segment connects the midpoints of two sides of a triangle, then it is parallel to the opposite side and equal to one half of the opposite side's length.*

✔ *The triangle formed by the midsegments of a triangle is the same type of triangle as the original.*

✔ *The perimeter of the triangle formed is half of the original triangle's perimeter.*

✔ *The area of the triangle formed is one fourth the area of the original.*

Vocabulary

midpoint	parallel
isosceles	equilateral
obtuse triangle	acute triangle
perimeter	area

Prerequisites

Students must understand how to:

✔ *Create and label a triangle.*

✔ *Measure and label segments.*

✔ *Measure and label angles.*

Answers

11. They are parallel.

14. Yes.

15. Midsegment is parallel to the opposite side.

17. The side length is twice the size of the midsegment.

22. The midsegment is half as long as the opposite side.

28. The perimeter of the midsegment triangle is half the original triangle.

29. The area of the midsegment triangle is one fourth of the original triangle because the triangle is divided into four equal triangles.

33. Acute triangle.

35. Obtuse triangle.

42. Isosceles triangle.

44. Isosceles triangle.

51. Equilateral triangle.

53. Equilateral triangle.

54. The type of triangle formed by the midsegments is the same type of triangle as the original triangle.
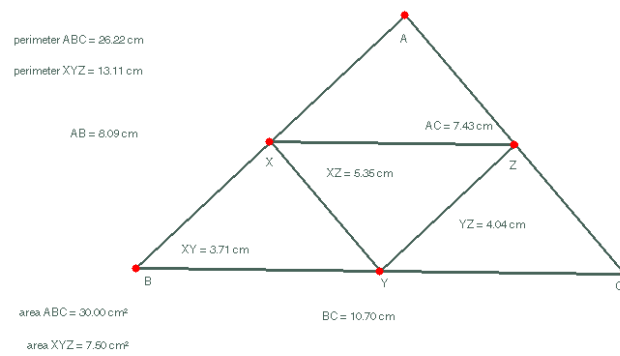
Figure A.7