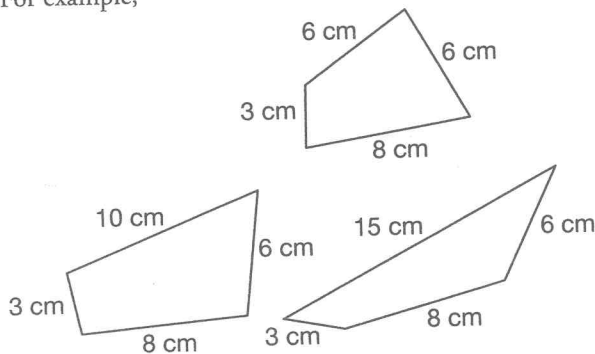


# Chapter 7 Problems Bank

## Answers

1. For example, Selina's estimate has to be close because the blue angles are the same size, are smaller than  $78^\circ$ , and look to be about half of a  $90^\circ$  angle or  $45^\circ$ . Also, the side of the game is a straight angle, or  $180^\circ$ . Mentally, I can round  $78^\circ$  to  $80^\circ$  and subtract:  $180^\circ - 80^\circ = 100^\circ$ . So the blue angles are about  $50^\circ$  each.

2. a) For example,



b) No. For example, a rectangle requires four right angles and equal opposite sides. Having three different side lengths makes this impossible.

c) For example, I made one quadrilateral with a side length of 16 cm.

d) No, because this is longer than the given side lengths placed end-to-end in a straight line:  $3 + 8 + 6 = 17$  cm. The longest fourth side one could make would have to be just under 17 cm in order for the shape to still have four sides and be a quadrilateral.

3. a) For example, the original shape might look like a rectangle that is twice as wide and twice as long as the shape shown.

b) Yes. For example, the original shape might also have been a long, thin rectangle that was folded twice vertically, or a tall rectangle that was folded twice horizontally.

4. a) You are a regular hexagon or a square. A regular polygon's lines of symmetry equal its number of sides. The regular hexagon has six lines of symmetry and six sides, and the square has four lines of symmetry and four sides.

b) You have to be the rhombus. Four of the polygons have two pairs of parallel sides, but only the rhombus and the square have perpendicular diagonals. However, unlike the rhombus, the square's diagonals are the same length.

c) You are the parallelogram. Both the rhombus and the parallelogram have two pairs of parallel sides and two obtuse angles, but only the parallelogram has diagonals that are not perpendicular.