Properties of quadrilaterals established using triangles

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Parallelogram ABCD has AB = 9 cm and BC = 5 cm. Find CD and DA. [2 marks]

Opposite sides of a parallelogram are equal.

Answer: CD = 9 cm; DA = 5 cm.

2. One angle of a parallelogram is 65°. Find an adjacent angle and its opposite angle. [3 marks]

Adjacent angles sum to 180°, giving $180 - 65 = 115°$.

Opposite angles are equal.

Answer: Adjacent angle 115°; opposite angle 65°.

3. Parallelogram diagonals AC and BD meet at O. AO = 4 cm and BO = 6 cm. Find OC and OD. [2 marks]

The diagonals bisect each other, so AO = OC and BO = OD.

Answer: OC = 4 cm; OD = 6 cm.

4. A rectangle has one diagonal 13 cm long. Find the length of its other diagonal and explain. [2 marks]

A rectangle’s diagonals are equal.

Answer: 13 cm.

5. A rhombus has one side 6 cm. Find its perimeter. [2 marks]

All four sides are equal, so $P = 4(6) = 24$ cm.

Answer: 24 cm.

6. A parallelogram ABCD is split by diagonal AC. Which equal angles follow from AB parallel to CD? Explain the transversal used. [3 marks]

AC crosses both parallel lines.

These angles are an alternate-angle pair.

Answer: Angle BAC equals angle DCA.