# 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 $DCA$.