Watch. Practice. Understand. | Lesson 080

Special Parallelogram Rectangles And Proof (Big Idea Geometry 7.4)

Watch the matching video: https://www.youtube.com/watch?v=-Gq_WdjvZ8c

Practice focus: Quadrilateral properties and proof

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 The diagonals of a quadrilateral bisect each other. What special quadrilateral must it be?

02 A parallelogram has perpendicular diagonals. What more specific classification follows?

03 A parallelogram has congruent diagonals. What can be concluded?

04 A rhombus has diagonals 12 and 16. Find its side length.

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Practice focus: Polygons and quadrilaterals

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Name: _____ Date: _____ Show your reasoning and check units.

05 Find the sum of the interior angles of a hexagon.

06 A regular polygon has exterior angle 24°. How many sides does it have?

07 A parallelogram has one angle 70°. Find all its angles.

08 A trapezoid has bases 8 and 14. Find its midsegment length.

Worked answers | Lesson 080

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01 The diagonals of a quadrilateral bisect each other. What special quadrilateral must it be?

A parallelogram, by the converse of the diagonal-bisection property.

02 A parallelogram has perpendicular diagonals. What more specific classification follows?

It is a rhombus; perpendicular diagonals alone do not force right angles at the vertices.

03 A parallelogram has congruent diagonals. What can be concluded?

It is a rectangle. Congruent diagonals imply equal adjacent angles, which must then be right angles.

04 A rhombus has diagonals 12 and 16. Find its side length.

Half-diagonals 6 and 8 form perpendicular legs. Side = $\sqrt{(6^2 + 8^2)} = 10$.

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05 Find the sum of the interior angles of a hexagon.

(6 - 2)180° = 720°.

06 A regular polygon has exterior angle 24°. How many sides does it have?

n = 360/24 = 15 sides.

07 A parallelogram has one angle 70°. Find all its angles.

Opposite angles are equal; adjacent angles are supplementary. Angles: 70°, 110°, 70°, 110°.

08 A trapezoid has bases 8 and 14. Find its midsegment length.

Midsegment = (8 + 14)/2 = 11.