Rectangles and rhombi: diagonal conditions and converses

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Name: _____ Class: _____ Date: _____

Worked example 1

ABCD is a rectangle with AC=10 cm. Find BD and name the special rectangle property.

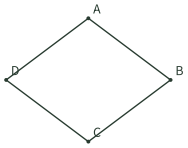


Geometry diagram; not drawn to scale except for construction tasks.

Guided attempt 2

ABCD is a rhombus with AB=5 cm. Find CD and explain why no diagonal calculation is needed.

1. A rhombus has ____ equal sides.
2. $AB = BC = CD = DA = \square$ cm.
3. Therefore CD=____ cm; the information needed is a side length, not a diagonal length.



Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 3

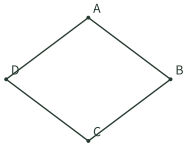
A parallelogram has one right angle. Which special type must it be?



Geometry diagram; not drawn to scale except for construction tasks.

Prerequisite 4

A parallelogram has AB=BC. Which special type follows?



Geometry diagram; not drawn to scale except for construction tasks.

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Independent practice 5

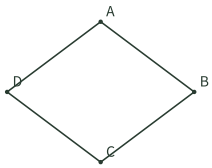
ABCD is a parallelogram and AC=BD. State the strongest classification justified by these conditions.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 6

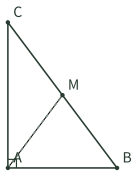
ABCD is a parallelogram and AC⊥BD. Which special type follows? Explain the required premise.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 7

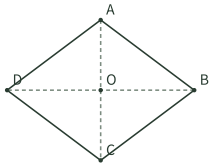
∠A=90° in △ABC, BC=10 cm, and M is the midpoint of BC. Find AM.



Geometry diagram; not drawn to scale except for construction tasks.

Independent practice 8

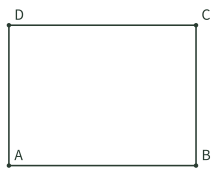
A rhombus has diagonals AC=6 cm and BD=8 cm, meeting at O. Find its side AB, explaining both diagonal properties used.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 9

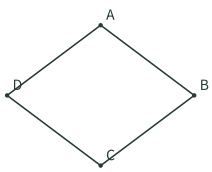
Is every rectangle a parallelogram? Explain using the inclusive definition.



Geometry diagram; not drawn to scale except for construction tasks.

Exit question 10

Must every rhombus be a rectangle? Use the shown non-square rhombus.



Geometry diagram; not drawn to scale except for construction tasks.