

Geometry · Parallelograms and Special Quadrilaterals · Quiz

Common Core G-CO.C.11 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

Ten multiple-choice questions check the main facts about parallelograms, rectangles, rhombuses, trapezoids and kites. Four questions use a figure, so read the markings carefully before you answer. Each explanation shows the reasoning and points out the most common mistake, which is useful when you review.

GeometryCommon Core: G-CO.C.11

Questions

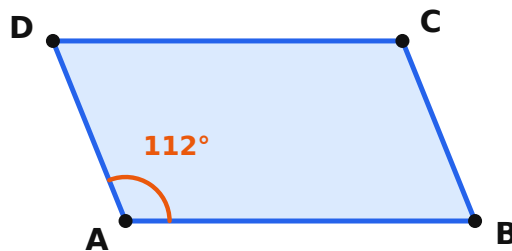
Question 1

Which statement is NOT true for every parallelogram?

- A. Opposite sides are congruent.
- B. The diagonals are congruent.
- C. Opposite angles are congruent.
- D. Consecutive angles are supplementary.

Question 2

In parallelogram ABCD, what is $m\angle B$?



Parallelogram ABCD with angle A = 112 degrees.

- A. 68°
- B. 112°
- C. 248°
- D. 56°

Question 3

Which fact is enough to prove that a quadrilateral is a parallelogram?

- A. Its diagonals are congruent.
- B. Its diagonals are perpendicular.
- C. Its diagonals bisect each other.
- D. One pair of opposite sides is congruent.

Question 4

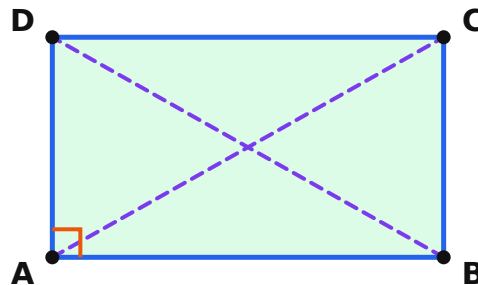
Which property belongs to every rhombus but not to every rectangle?

- A. The diagonals are perpendicular.
- B. The diagonals bisect each other.
- C. Opposite sides are parallel.
- D. Opposite angles are congruent.

Question 5

Find AC in the rectangle.

$$AC = 7x - 2, BD = 5x + 10$$



Rectangle ABCD with $AC = 7x - 2$ and $BD = 5x + 10$.

- A. 6
- B. 20
- C. 40
- D. 80

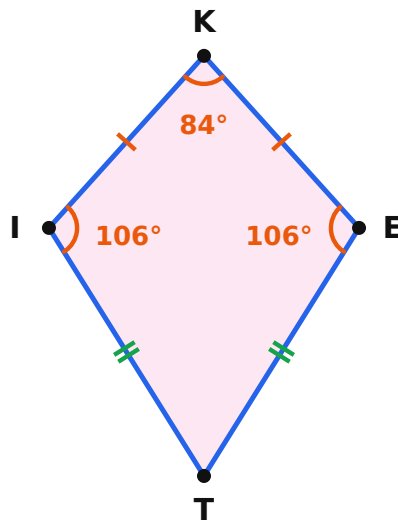
Question 6

Which quadrilateral always has congruent diagonals?

- A. Rhombus
- B. Kite
- C. Parallelogram
- D. Rectangle

Question 7

What is the measure of angle T in this kite?



Kite KITE with angle K = 84 degrees and angles I and E = 106 degrees.

- A. 74°
- B. 106°
- C. 128°
- D. 64°

Question 8

The diagonals of parallelogram ABCD meet at E. If $AC = 20$ and $BD = 14$, what is BE ?

- A. 14
- B. 7
- C. 10
- D. 20

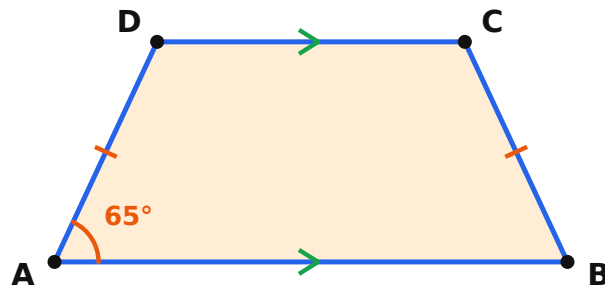
Question 9

A quadrilateral has four congruent sides and four right angles. What is its most specific name?

- A. Rhombus
- B. Rectangle
- C. Parallelogram
- D. Square

Question 10

In the isosceles trapezoid, what is $m\angle D$?



Isosceles trapezoid ABCD with bases AB and DC and angle A = 65 degrees.

- A. 115°
- B. 65°
- C. 25°
- D. 130°

Answer key

1. **B** – Congruent diagonals are true only for rectangles. The other three statements hold for every parallelogram.
2. **A** – Angle B and angle A are consecutive, so they add to 180: $180 - 112 = 68$. The value 112 would be the opposite angle.
3. **C** – Bisecting diagonals prove a parallelogram. Congruent diagonals fit an isosceles trapezoid, perpendicular diagonals fit a kite, and one congruent pair of sides is not enough.
4. **A** – Both figures are parallelograms, so they share the other three properties. Perpendicular diagonals are special to the rhombus.
5. **C** – The diagonals are congruent: $7x - 2 = 5x + 10$ gives $x = 6$. Then $AC = 7(6) - 2 = 40$. The value 6 is only x .
6. **D** – Every rectangle has congruent diagonals. A rhombus, kite or general parallelogram usually has diagonals of different lengths.
7. **D** – The angles add to 360: $360 - 84 - 106 - 106 = 64$. Splitting the remaining 148 in half would wrongly give 74.
8. **B** – The diagonals bisect each other, so BE is half of BD: $14 / 2 = 7$. The value 10 is AE, half of AC.
9. **D** – It is a rhombus, a rectangle and a parallelogram, but the most specific name is square.
10. **A** – Angles A and D lie along the same leg between parallel bases, so they are supplementary: $180 - 65 = 115$. Angle A is a base angle, so D is its supplement.

Remember:

- Standard G-CO.C.11 covers proving and using theorems about parallelograms.
- In every parallelogram, opposite sides and angles are congruent, consecutive angles add to 180 degrees, and diagonals bisect each other.
- Any one of five conditions proves a quadrilateral is a parallelogram, such as diagonals that bisect each other.
- A rectangle has congruent diagonals, a rhombus has perpendicular diagonals, and a square has both.
- An isosceles trapezoid has congruent diagonals, and a kite has perpendicular diagonals.