

Geometry - Parallelograms and Quadrilaterals - Test

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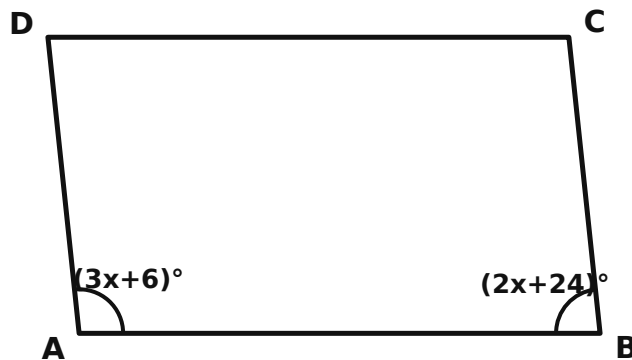
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks properties of parallelograms and special quadrilaterals. It has 9 questions worth 20 points in total. Show every step of the work, label diagrams, and include units where they apply. Calculators are allowed unless the teacher says otherwise.

About this test

- Grade: Geometry
- Chapter: Parallelograms and Quadrilaterals
- Standards: G-CO.C.11
- Time: 45 minutes
- Total: 20 points

Question 1 - Angles of a parallelogram [2 pts]



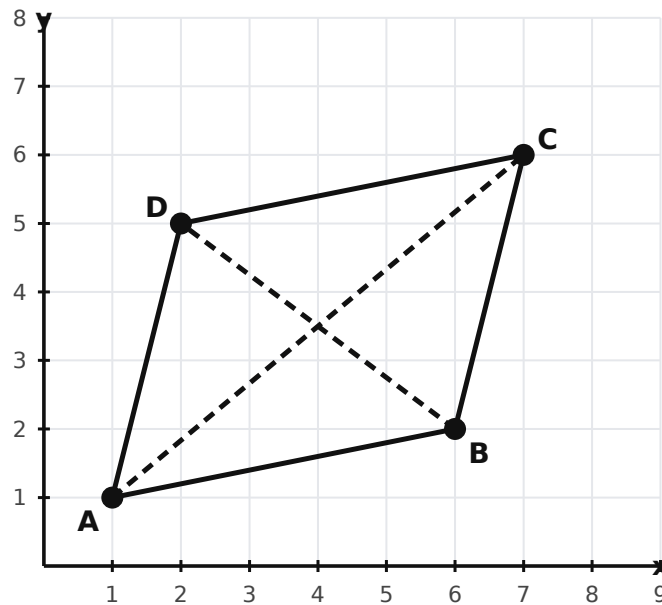
Parallelogram ABCD.

Find x and the measure of each angle of the parallelogram.

Question 2 - Diagonals [2 pts]

The diagonals of parallelogram PQRS meet at T. $PT = 4x + 3$ and $TR = 6x - 7$. Find x and PR.

Question 3 - Coordinate proof [3 pts]



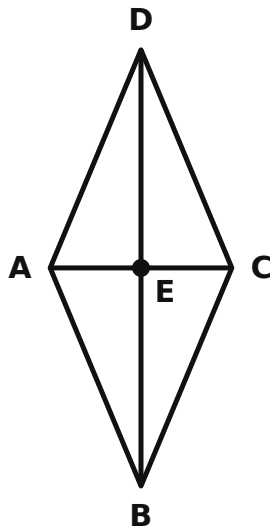
Quadrilateral ABCD.

- Find the midpoint of AC and the midpoint of BD. (1 point)
- What do the midpoints show about ABCD? (1 point)
- Is ABCD a rhombus? Find AB and BC. (1 point)

Question 4 - Rectangle [2 pts]

A rectangular patio is 15 feet by 20 feet. Find the length of each diagonal and explain why the diagonals have the same length.

Question 5 - Rhombus [2 pts]



Rhombus ABCD.

The diagonals of rhombus ABCD are 10 and 24. Find its side length and perimeter.

Question 6 - Classify [3 pts]

- A quadrilateral has diagonals that are congruent and bisect each other, but are not perpendicular. Name the quadrilateral. (1 point)
- A kite has angles of 80° , 110° and 110° . Find the fourth angle. (1 point)
- A square has diagonals of 14. Find its side length in simplest radical form. (1 point)

Question 7 - Prove opposite sides [2 pts]

In parallelogram ABCD, diagonal AC splits it into triangles ABC and CDA. Explain why $AB = CD$.

Question 8 - Frame [2 pts]

A carpenter builds a rectangular door frame 3 feet wide and 7 feet tall. One diagonal measures 7.6 feet. Is the frame square? Explain (the diagonals of a square rectangle must be congruent and equal to the Pythagorean length).

Question 9 - Perimeter [2 pts]

A parallelogram has adjacent sides $3x+2$ and $x+7$, and its perimeter is 50. Find x and both side lengths.