

2nd Half Properties of a Parallelogram (Big Idea Geometry 7.2)

Lesson 079 | Geometry | Quadrilateral properties and proof • Polygons and quadrilaterals

<https://www.youtube.com/watch?v=MJa45QhpBjs>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Parallelogram ABCD has $AB=5x+9$, $CD=19$, and angle $A=65^\circ$. Find x and the remaining angles, citing properties.

02

A regular 5-gon has side length 14. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

03

Parallelogram ABCD has $AB=7x+3$, $CD=52$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

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04

A regular 9-gon has side length 20. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

05

Parallelogram ABCD has $AB=5x+6$, $CD=41$, and angle $A=80^\circ$. Find x and the remaining angles, citing properties.

06

A regular 10-gon has side length 132. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

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01

Parallelogram ABCD has $AB=5x+9$, $CD=19$, and angle $A=65^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $5x+9=19$, so $x=2$. Opposite angles equal: $C=65^\circ$. Consecutive angles supplementary: $B=D=115^\circ$.

02

A regular 5-gon has side length 14. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 70; angle sum $(5-2)180^\circ=540^\circ$; each exterior angle $360/5=72^\circ$. Diagonals $5(5-3)/2=5$.

03

Parallelogram ABCD has $AB=7x+3$, $CD=52$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $7x+3=52$, so $x=7$. Opposite angles equal: $C=70^\circ$. Consecutive angles supplementary: $B=D=110^\circ$.

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04

A regular 9-gon has side length 20. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 180; angle sum $(9-2)180^\circ=1260^\circ$; each exterior angle $360/9=40^\circ$. Diagonals $9(9-3)/2=27$.

05

Parallelogram ABCD has $AB=5x+6$, $CD=41$, and angle $A=80^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $5x+6=41$, so $x=7$. Opposite angles equal: $C=80^\circ$. Consecutive angles supplementary: $B=D=100^\circ$.

06

A regular 10-gon has side length 132. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 1320; angle sum $(10-2)180^\circ=1440^\circ$; each exterior angle $360/10=36^\circ$. Diagonals $10(10-3)/2=35$.