

Properties of a Parallelogram and Proofs (Geometry Big Idea 7.2)

Lesson 078 | Geometry | Quadrilateral properties and proof • Polygons and quadrilaterals

https://www.youtube.com/watch?v=fOGq1zlu_LU

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Parallelogram ABCD has $AB=8x+10$, $CD=50$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

02

A regular 10-gon has side length 88. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

03

Parallelogram ABCD has $AB=9x+3$, $CD=30$, and angle $A=85^\circ$. Find x and the remaining angles, citing properties.

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04

A regular 7-gon has side length 10. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

05

Parallelogram ABCD has $AB=8x+13$, $CD=45$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

06

A regular 7-gon has side length 36. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

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01

Parallelogram ABCD has $AB=8x+10$, $CD=50$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $8x+10=50$, so $x=5$. Opposite angles equal: $C=70^\circ$. Consecutive angles supplementary: $B=D=110^\circ$.

02

A regular 10-gon has side length 88. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 880; angle sum $(10-2)180^\circ=1440^\circ$; each exterior angle $360/10=36^\circ$. Diagonals $10(10-3)/2=35$.

03

Parallelogram ABCD has $AB=9x+3$, $CD=30$, and angle $A=85^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $9x+3=30$, so $x=3$. Opposite angles equal: $C=85^\circ$. Consecutive angles supplementary: $B=D=95^\circ$.

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04

A regular 7-gon has side length 10. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 70; angle sum $(7-2)180^\circ=900^\circ$; each exterior angle $360/7=360/7^\circ$. Diagonals $7(7-3)/2=14$.

05

Parallelogram ABCD has $AB=8x+13$, $CD=45$, and angle $A=70^\circ$. Find x and the remaining angles, citing properties.

Opposite sides equal: $8x+13=45$, so $x=4$. Opposite angles equal: $C=70^\circ$. Consecutive angles supplementary: $B=D=110^\circ$.

06

A regular 7-gon has side length 36. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 252; angle sum $(7-2)180^\circ=900^\circ$; each exterior angle $360/7=360/7^\circ$. Diagonals $7(7-3)/2=14$.