

Big Idea Geometry Chapter 7 Polygons with Interior and Exterior Angles

Lesson 076 | Geometry | Polygons and quadrilaterals

<https://www.youtube.com/watch?v=biKvIwkpx50>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

A regular 9-gon has side length 10. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

02

A regular 8-gon has side length 42. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

03

A regular 7-gon has side length 35. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

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04

A regular 7-gon has side length 130. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

05

A regular 5-gon has side length 55. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

06

A regular 6-gon has side length 104. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

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01

A regular 9-gon has side length 10. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 90; angle sum $(9-2)180^\circ=1260^\circ$; each exterior angle $360/9=40^\circ$. Diagonals $9(9-3)/2=27$.

02

A regular 8-gon has side length 42. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 336; angle sum $(8-2)180^\circ=1080^\circ$; each exterior angle $360/8=45^\circ$. Diagonals $8(8-3)/2=20$.

03

A regular 7-gon has side length 35. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 245; angle sum $(7-2)180^\circ=900^\circ$; each exterior angle $360/7=360/7^\circ$. Diagonals $7(7-3)/2=14$.

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04

A regular 7-gon has side length 130. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 910; angle sum $(7-2)180^\circ=900^\circ$; each exterior angle $360/7=360/7^\circ$. Diagonals $7(7-3)/2=14$.

05

A regular 5-gon has side length 55. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 275; angle sum $(5-2)180^\circ=540^\circ$; each exterior angle $360/5=72^\circ$. Diagonals $5(5-3)/2=5$.

06

A regular 6-gon has side length 104. Find its perimeter, interior-angle sum, each exterior angle, and number of diagonals.

Perimeter 624; angle sum $(6-2)180^\circ=720^\circ$; each exterior angle $360/6=60^\circ$. Diagonals $6(6-3)/2=9$.