Lesson 1.3 — Student Notes

Polygons and Area in the Plane

POLYGONS — *definition, types, and naming*

Polygon

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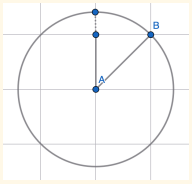
Convex vs. Concave Polygons

Convex	Concave

Sides	Polygon Name	Sides	Polygon Name
3	Triangle	8	Octagon
4	Quadrilateral	9	Nonagon
5	Pentagon	10	Decagon
6	Hexagon	11	Hendecagon
7	Heptagon	12	Dodecagon
n	n-gon		

PERIMETER WITH SLANTED SIDES

Why Can't We Count Grid Squares for Slanted Sides?



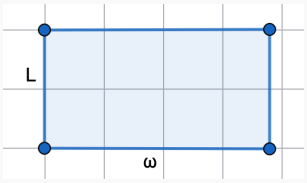
Counting grid squares measures:

_____

For slanted sides we must use:

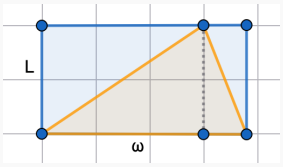
_____

Rectangle — A = l × w



Formula: A = _____ × _____

Triangle — A = ½ b × h



Formula: A = ½ × _____ × _____

Visual argument

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Practice

1. **A triangle has vertices at A(0, 0), B(6, 0), and C(6, 4). Find its perimeter.**

2. **A quadrilateral has vertices at P(1, 1), Q(5, 1), R(5, 4), S(1, 4). Find its area.**

3. **A triangle has base 8 cm and height 5 cm. Find its area.**

4. **A polygon has vertices (0,0), (4,0), (4,3), (2,5), (0,3). Classify it by name. Is it convex or concave?**