Geometry Unit 6 Cheat Sheet

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Polygons

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

Vocabulary

Term	Definition
Vertex of the polygon	The common endpoint of two sides of a polygon
Diagonal	A segment connecting any two nonconsecutive vertices of a polygon
Regular polygon	An equilateral and equiangular polygon (always convex)
Concave polygon	A polygon with parts of a diagonal on the exterior of the polygon
Convex polygon	A polygon with every part of the diagonals on the interior
Rectangle	A quadrilateral with four right angles
Rhombus	A quadrilateral with four congruent sides
Square	A quadrilateral with four right angles and four congruent sides; it is a parallelogram, a rectangle, and a rhombus
Kite	A quadrilateral with exactly two pairs of consecutive sides
Trapezoid	A quadrilateral with exactly one pair of parallel sides
Base	One of the parallel sides of a trapezoid
Leg	One of the nonparallel sides of a trapezoid
Isosceles trapezoid	A trapezoid in which the legs are congruent

Vocabulary (cont)

Midsegment of a trapezoid	The segment whose endpoints are the midpoints of the legs of a trapezoid

Theorems & Postulates

Name	Theorem
Polygon angle sum theorem	The sum of the interior angle measures of a convex polygon with n sides is $(n - 2)180$ degrees.
Polygon exterior angle sum theorem	The sum of the exterior angle measures, one angle at each vertex, of a convex polygon is 360 degrees.
Trapezoid Midsegment Theorem	The midsegment of a trapezoid is parallel to each base, and its length is one half the sum of the lengths of the bases

Formulas

Name	Formula
Sum of interior angle measures	$(n - 2)180$
Midsegment of a trapezoid length	1/2(base 1 + base 2)
Midpoint Formula	$(x,y) = [(x1 + x2)/2], [(y1 + y2)/2]$
Distance formula	$\sqrt{(x2 - x1)^2+(y2 - y1)^2}$

Properties of Parallelograms

If a quadrilateral is a parallelogram, then...

Its opposite sides are congruent AND

Its opposite angles are congruent AND

Its consecutive angles are supplementary AND

Its diagonals bisect each other.

If...

One pair of opposite sides of a quadrilateral are parallel and congruent OR

Both pairs of opposite sides of a quadrilateral are congruent OR

Both pairs of opposite angles of a quadrilateral are congruent OR

An angle of a quadrilateral is supplementary to both of its consec-utive angles OR

The diagonals of a quadrilateral bisect each other,

then the quadrilateral is a parallelogram.

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Properties of Rectangles & Rhombuses

If a quadrilateral is a rectangle, then...

It is a parallelogram AND

Its diagonals are congruent.

If a quadrilateral is a rhombus, then...

It is a parallelogram AND

Its diagonals are perpendicular AND

Each diagonal bisects a pair of opposite angles.

Properties of Kites and Trapezoids

If a quadrilateral is a kite, then...

Its diagonals are perpendicular AND

Exactly one pair of opposite angles are congruent.

If a quadrilateral is an isosceles trapezoid, then...

Each pair of base angles are congruent AND

Its diagonals are congruent.

If...

A trapezoid has one pair of congruent base angles OR

A trapezoid has congruent diagonals,

then the trapezoid is isosceles.

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