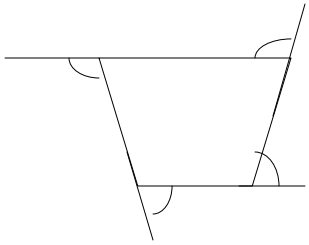
Math Tricks No. 4

Polygons

Polygon is a simple planar figure formed by line segments.

# sides	Name
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon
10	Decagon
12	Dodecagon



In the polygon above, the angles marked are exterior angles. In ALL polygons, exterior angles sum to 360°.

Regular polygon - all sides equal and all angles equal

Interior angle = $\frac{180(n-2)}{n} = 180 - \frac{360}{n}$

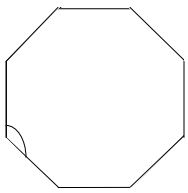
# sides	Angle
3	60°
4	90°
5	108°

Exterior angle = $\frac{360}{n}$, where n = # of sides

Ex. What are the interior and exterior angle measurements a regular octagon? (An interior angle is marked.)

Interior angle = $\frac{180(n-2)}{n} = 180 - \frac{360}{n} = 180 - \frac{360}{8} = 180 - 45 = 135°$

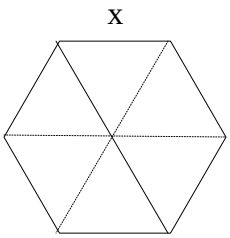
Exterior angle = $\frac{360}{n} = \frac{360}{8} = 45°$



Ex. Find number of sides whose interior angles sum to 1800

$180(n-2) = 1800$, $n - 2 = 10$, $n = 12$

Regular hexagons

Draw diagonals to get 6 equilateral triangles

Diagonal is twice the length of a side, so the solid line across the hexagon is 2x