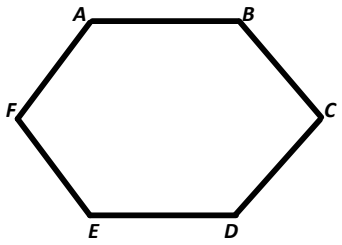
Angles of Polygons

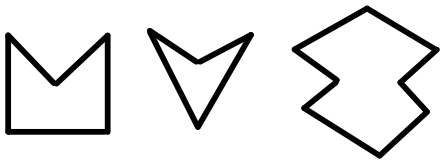
Polygon - A plane figure that meets the following conditions:

1. It is formed by three or more segments called sides (no two sides with a common endpoint are collinear).
2. Each side intersects exactly two other sides, one at each endpoint.

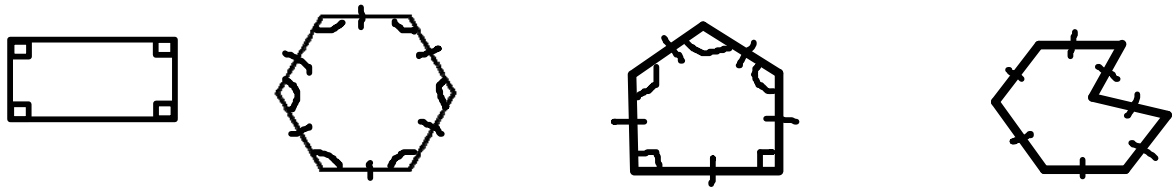


Convex Polygon

Concave Polygon



Regular Polygon - A polygon with congruent sides and congruent angles.



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

Sum of the measures of the interior angles of a convex polygon: $(n-2)180^\circ$

Each interior angle of a regular polygon: $\dfrac{(n-2)180^\circ}{n}$

Sum of the measures of the exterior angles of a convex polygon: 360°

Each exterior angle of a regular polygon: $\dfrac{360^\circ}{n}$

1. Find the sum of the measures of the interior angles of each convex polygon.

   a) 8-gon

   b) $2m$-gon

2. The sum of the measures of the interior angles of a convex polygon is 720°. Find the number of sides.

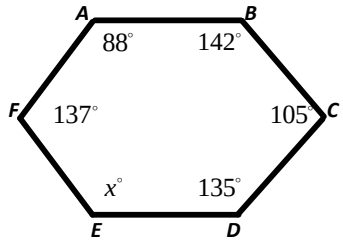
3. The measure of each exterior angle of a regular polygon is given. Find the number of sides of the polygon.

a) 72° b) 14.4°

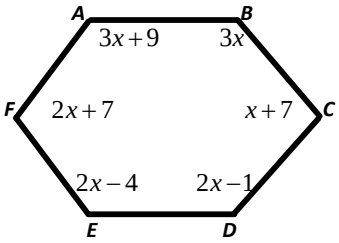
4. The measure of each interior angle of a regular polygon is given. Find the number of sides in each polygon.

a) 144° b) 176.4°

5. Find the value of x.



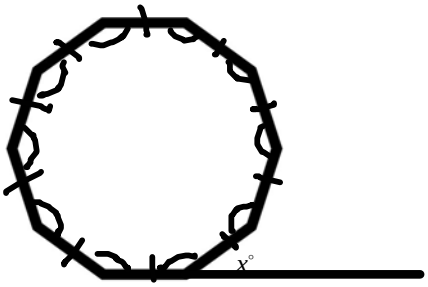
6. Find the measure of each angle.



7. The measures of the interior angles of a pentagon are x, $3x-4$, $2x+2$, $6x-8$ and $2x+4$. Find the measure of each angle.

8. Find the value of x.

a)



b)