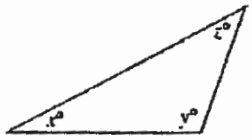
Triangles

1) In any triangle, the sum of the measures of the three angles is 180°.



$x + y + z = 180.$

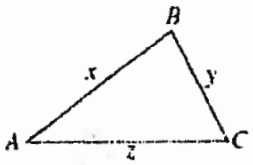
2) The measure of an exterior angle of a triangle is equal to the sum of the measures of the two opposite interior angles.

3) In any triangle:

- the longest side is opposite the largest angle;
- the shortest side is opposite the smallest angle;
- sides with the same length are opposite angles with the same measure.

4) **The Triangle Inequality Theorem**

$|x - y| < z < x + y$



5) The area of a triangle is given by $A = \frac{1}{2}bh$, where b = base and h = height.

6) If A represents the area of an equilateral triangle with side s, then $A = \frac{s^2\sqrt{3}}{4}$.

7) Two triangles are *similar* provided that the following two conditions are satisfied.

1. The three angles in the first triangle are congruent to the three angles in the second triangle.

$$m\angle A = m\angle D, \quad m\angle B = m\angle E, \quad m\angle C = m\angle F.$$

2. The lengths of the corresponding sides of the two triangles are in proportion:

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}.$$

8) If the measures of two angles of one triangle are equal to the measures of two angles of a second triangle, the triangles are similar.

9) If two triangles are similar, and if k is the ratio of similitude, then:

- The ratio of all the linear measurements of the triangles is k.
- The ratio of the areas of the triangles is k^2.

Polygons

1) A polygon is a closed-sided figure.

2) In any quadrilateral, the sum of the measures of the four angles is $360°$.

3) The sum of the measures of the n angles in a polygon with n sides is $(n - 2) \times 180°$.

4) In any polygon, the sum of the measures of the exterior angles, taking one at each vertex, is $360°$.

5) Here are the area formulas you need to know:

- For a parallelogram: $A = bh$.
- For a rectangle: $A = \ell w$.
- For a square: $A = s^2$ or $A = \frac{1}{2}d^2$.