

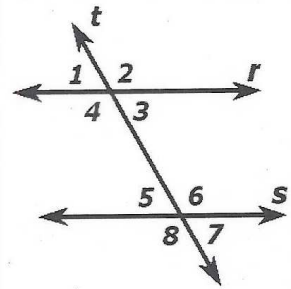
More About Angles (Section 11.3)

Definitions:

Supplementary Angles:

Complementary Angles:

Example: Using the figure below, identify each of the following if $r \parallel s$.



a. Vertical Angles:

b. Transversal:

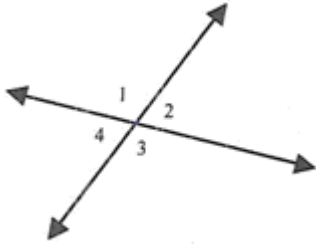
c. Alternate Interior Angles:

d. Alternate Exterior Angles:

e. Corresponding Angles:

Theorem: Vertical angles are congruent.

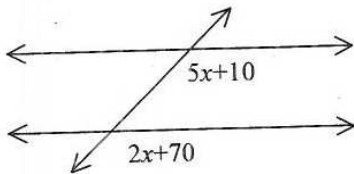
Proof: Consider the following intersecting lines.



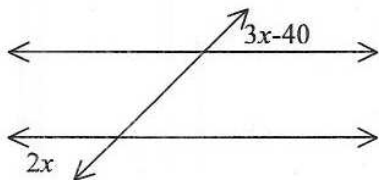
Theorem: If two lines are cut by a transversal, then corresponding angles, alternate interior angles, or alternate exterior angles are congruent if and only if the lines are parallel.

Examples: Solve for x in the following figures if the lines are parallel. Justify any congruence.

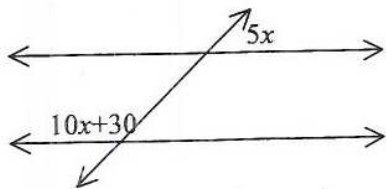
a.



b.

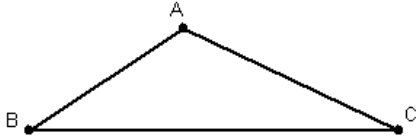


c.

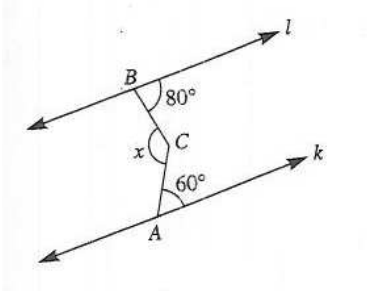


Theorem: The interior angles of a triangle sum to _____.

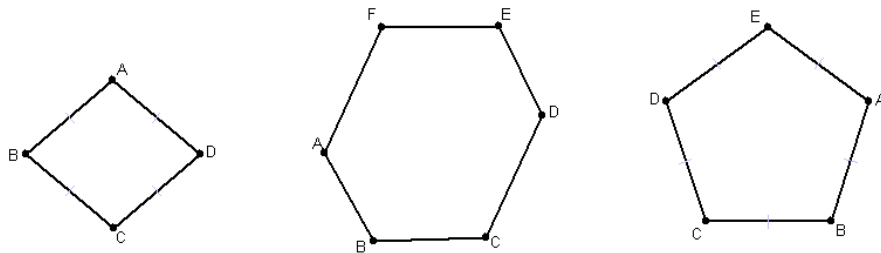
Proof: Consider the following triangle.



Example: In the figure, lines k and l are parallel. Angles A and B are shown. Find x .



Theorem: The sum of the measures of the interior angles of any convex polygon having n sides is _____.



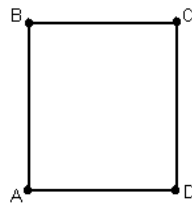
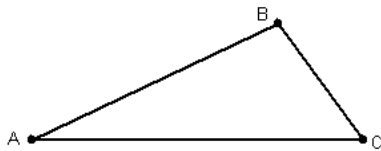
Corollary: In a regular polygon, each interior angle has measure _____.

Examples:

a. Find the measure of each interior angle in a regular dodecagon (12-gon).

b. In a regular polygon, if an interior angle has measure 168° , how many sides does the polygon have?

Theorem: The sum of the measures of the exterior angles of a convex polygon is _____.



Homework: Page 720: 3, 5a, 6, 8, 9, 13