

Sheet#0351: Postulates, Properties, and Theorems 2

Segment Addition Postulate (#2)	$AB + BC = AC$
Angle Addition Postulate (#4)	$m\angle AOB + m\angle BOC = m\angle AOC$
Addition Property of Equality	If $a = b$ and $c = d$, then $a + c = b + d$
Subtraction Property of =	If $a = b$ and $c = d$, then $a - c = b - d$
Multiplication Property of =	If $a = b$ then $ca = cb$
Division Property of =	If $a = b$ then $a/c = b/c$ for $c \neq 0$
Substitution Property of =	If $a = b$ then a or b may be substituted for the other in any equation.
Reflexive Property of Equality	$a = a$
Symmetry Property of =	If $a = b$, then $b = a$
Transitive Property of =	If $a = b$ and $b = c$ then $a = c$
Reflexive Property of Congruence	$\overline{AB} \cong \overline{AB}$ (and likewise for angles)
Symmetric Property of \cong	If $\overline{AB} \cong \overline{CD}$ then $\overline{CD} \cong \overline{AB}$
Transitive Property of \cong	If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$ then $\overline{AB} \cong \overline{EF}$
Midpoint Theorem (2-1)	If M is the midpoint of \overline{AB} then $AM = \frac{1}{2} AB$ and $MB = \frac{1}{2} AB$
Angle Bisector Theorem (2-2)	If \overline{BX} is the bisector of $\angle ABC$ then $m\angle ABX = \frac{1}{2}m\angle ABC$ and $m\angle XBC = \frac{1}{2}m\angle ABC$
Vertical Angles Theorem (2-3)	Vertical angles are congruent.
Perpendicular Lines Theorem (2-4)	If two lines are perpendicular, then they form congruent adjacent angles.
Perpendicular Lines Theorem Converse (2-5)	If two lines form congruent adjacent angles, then the lines are perpendicular.
Corresponding Angles Postulate (#10)	If two parallel lines are cut by a transversal, then corresponding angles are congruent.
Corresponding Angles Postulate Converse (#11)	If two lines are cut by a transversal and corresponding angles are congruent, then the lines are parallel.
AIA Theorem (3-2)	If two parallel lines are cut by a transversal, then alternate interior angles are congruent.
AIA Theorem Converse (3-5)	If two lines are cut by a transversal and alternate interior angles are congruent, then the lines are parallel.
SSIA Theorem (3-3)	If two parallel lines are cut by a transversal, then same-side interior angles are supplementary.
SSIA Theorem Converse (3-6)	If two lines are cut by a transversal and same-side interior angles are supplementary, then the lines are parallel.
Triangle Sum Theorem (3-11)	The sum of the measures of the interior angles of a triangle is 180° .
Exterior Angle Theorem (3-12)	The measure of an exterior angle of a triangle equals the sum of the measures of the two remote (non-adjacent) interior angles.
Polygon Interior Angles Theorem (3-13)	The sum of the measures of the interior angles of a convex polygon with n sides is $(n - 2)180^\circ$.
Polygon Exterior \angle s Theorem (3-14)	The sum of the measures of the exterior angles of any convex polygon, one angle at each vertex, is 360° .