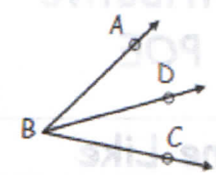
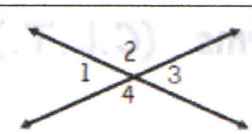
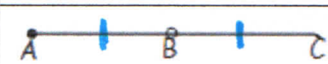
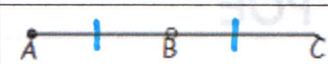
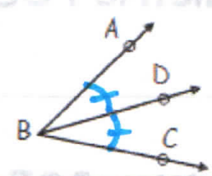
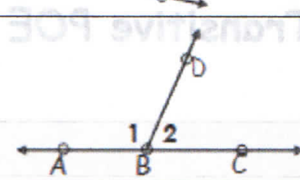
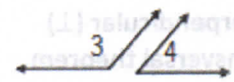
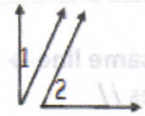
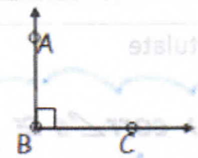
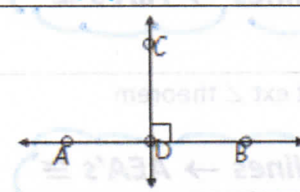
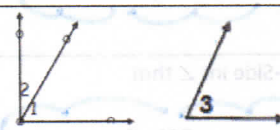
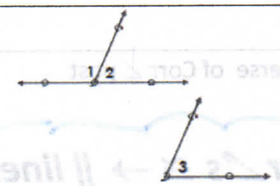
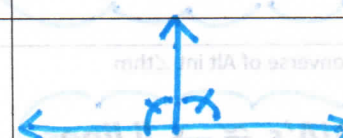
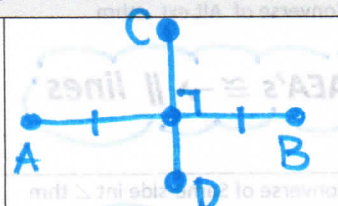
Properties, Definitions, Postulates, & Theorems	If	Then	Picture/Example
		Algebraic Properties of Equality	
Addition POE	If $a = b$, $m\angle 1 = m\angle 3$	Then $a + 3 = b + 3$ $m\angle 1 \underline{+ m\angle 2} = m\angle 3 \underline{+ m\angle 2}$	If $x-5=10$, then $x=15$.
Subtraction POE	If $AB = CD$ $m\angle ABC = m\angle DEF$	Then $AB \underline{- EF} = CD \underline{- EF}$ $m\angle ABC \underline{- m\angle 2} = m\angle DEF \underline{- m\angle 2}$	If $2x+7=14$ then $2x=7$
Multiplication POE	If $a = b$	Then $3a = 3b$	If $\frac{1}{2}a = 10$ then $a = 20$
Division POE	If $4x = 16$	Then $x = 4$	If $2a = 10$ then $a = 5$
Substitution	If $a = b$ $y= 3x+ 5$ and $x=2$	Then A and b can be substituted for each other in any equation or inequality $y= 3(2) +5$ Or $y=11$	
Distributive POE	If $2(x+5)$	Then $2x+ 10$	
Combine Like Terms (C.L.T.)	If Like terms are on the SAME SIDE of the equation	Then You can simplify them.	$5x+2x = 35$ $7x =35$
Reflexive POE	If a is a number	Then $a = a$	$AB = AB$ $m\angle 2 = m\angle 2$
Symmetric POE	If $AB = CD$	Then $CD = AB$	If $x = 7+a$, then $7+a = x$
Transitive POE	If $AB = CD$, $CD = EF$	Then $AB = EF$	

	Algebraic Properties of Congruence		
Reflexive POC	If a is a number	Then $a \cong a$	$\overline{AB} \cong \overline{AB}$ $\angle 2 \cong \angle 2$
Symmetric POC	If $AB \cong CD$	Then $CD \cong AB$	If $5 = x$, then $x = 5$
Transitive POC	If $AB \cong CD$, $CD \cong EF$	Then $AB \cong EF$	If $\angle 1 \cong \angle 2$, $\angle 2 \cong \angle 3$ then $\angle 1 \cong \angle 3$.
	Geometric Properties		
Definition of congruence Def $\cong$	If Segments are $\cong$ Angles are $\cong$	Then Their lengths are = Their measures are =	If $\overline{ST} \cong \overline{RW}$, then $ST = RW$ If $\angle 1 = \angle 2$, then $m\angle 1 = m\angle 2$
Segment Addition Postulate Seg Add Post	If B is between A and C	Then $AB + BC = AC$	 $AB + BC = AC$
Angle Addition Postulate $\angle$ Add Post	If D is in the interior of $\angle ABC$	Then $m\angle ABD + m\angle DBC = m\angle ABC$	
Vertical Angle Theorem Vert $\angle$ thrm	If 2 $\angle$'s are vertical $\angle$'s	Then The angles are $\cong$ $\angle 1 \cong \angle 3$; $\angle 2 \cong \angle 4$	
Definition of Midpoint Def Midpt	If B is the <u>midpoint</u> of $\overline{AC}$	Then $\overline{AB} \cong \overline{BC}$	
Definition of bisector Def of bisect	If $\overrightarrow{BD}$ bisects $\angle ABC$ B bisects $\overline{AC}$	Then $\angle ABD \cong \angle DBC$ $\overline{AB} \cong \overline{BC}$	 
Linear Pair Theorem	If 2 $\angle$'s form a linear pair $\angle 1$ and $\angle 2$ are a linear pair	Then The two angles are supplementary $\angle 1$ and $\angle 1$ are supplementary	

Definition of Supplementary Angles Def Supp $\measuredangle$	**If** 2 angles are supplementary $\angle 3$ and $\angle 4$ are supplementary	**Then** Their measures have a sum of 180° $m\angle 3 + m\angle 4 = 180°$	
Definition of Complementary Angles Def Comp $\measuredangle$	**If** 2 angles are complementary $\angle 1$ and $\angle 2$ are complementary	**Then** Their measures have a sum of 90° $m\angle 1 + m\angle 2 = 90°$	
Def. of right $\angle$	**If** $\angle ABC$ is a <u>right</u> angle	**Then** $m\angle ABC =$ 90°	
Right angle ≅ theorem	**If** Angles are right angles	**Then** They are congruent (all right angles are ≅)	If $\measuredangle 1$ and $\measuredangle 2$ are right $\measuredangle$, then $\measuredangle 1 \cong \measuredangle 2$
Def. of ⊥	**If** Two lines are perpendicular $\overline{AB} \perp \overline{CD}$	**Then** They form right angles $\angle CDB$ is a right angle	
Congruent Complements theorem ≅ Comp thrm	**If** Two angles are complementary to the same angles. $\angle 1$ is complementary to $\angle 2$ $\angle 3$ is complementary to $\angle 2$	**Then** The two angles are congruent $\angle 1$ __≅__ $\angle 3$	
Congruent Supplements theorem ≅ Supp thrm	**If** Two angles are supplementary to the same angles. $\angle 1$ is supplementary to $\angle 2$ $\angle 1$ is supplementary to $\angle 3$	**Then** The two angles are congruent $\angle 2$ __≅__ $\angle 3$	
≅ $\angle$'s sup → right $\angle$'s	**If** Two congruent angles are supplementary	**Then** Then each angle is a right angle	
Parallel/Perpendicular Lines Properties and Theorems			
Def. of ⊥ bisector	**If** A line is perpendicular to a segment at its midpoint	**Then** It is the perpendicular bisector	
2 intersecting lines form lin. Pr. Of ≅ $\angle$'s → lines ⊥.	**If** Two intersecting lines form a linear pair of congruent angles	**Then** The lines are perpendicular