

7.7 Angles and Proofs

Good Definitions

Postulates

Theorems - statements that have to be proven true

Complimentary

$$m\angle 1 + m\angle 2 = 90$$

Supplementary

$$m\angle 1 + m\angle 2 = 180$$

Congruent

Two things that have the same measure

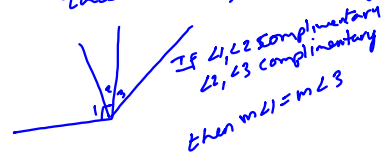
$$m\angle 1 = 90^\circ$$

$$m\angle 2 = 90^\circ$$

$$m\angle 1 = m\angle 2$$

Congruent Compliments Theorem

If Two angles are complimentary to the same or congruent angles, then those two angles are congruent



Given $\angle 1, \angle 2$ Comp
 $\angle 2, \angle 3$ Comp
 Prove $m\angle 1 = m\angle 3$



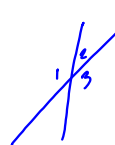
$$m\angle 2 = m\angle 3$$

1. $\angle 1, \angle 2$ comp $\angle 2, \angle 3$ comp
2. $m\angle 1 + m\angle 2 = 90^\circ$
3. $m\angle 2 + m\angle 3 = 90^\circ$
4. $m\angle 1 = 90^\circ - m\angle 2$
5. $m\angle 3 = 90^\circ - m\angle 2$
6. $m\angle 1 = m\angle 3$

Given
 def of comp
 def of comp
 subtraction ($m\angle 2$)
 subtraction ($m\angle 2$)
 substitution

Congruent Supplements Theorem

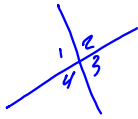
If two angles are supplementary to the same or congruent angle, then the two angles are congruent



$\angle 1, \angle 2$ supplem
 $\angle 2, \angle 3$ supplem then $\angle 1 \cong \angle 3$

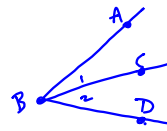
Straight angle

An angle whose measure is 180°



Vertical Angles
Opp angles formed when
2 lines intersect
 $\angle 1, \angle 3$ vertical \angle 's
 $\angle 2, \angle 4$ vertical \angle 's

Angle Addition Post

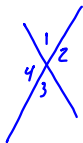


$$m\angle ABC + m\angle CBD = m\angle ABD$$

$$m\angle 1 + m\angle 2 = m\angle ABD$$

Vertical Angles Thm

All vertical angles are congruent



$\angle 1, \angle 3$ vertical \angle 's $m\angle 1 = m\angle 3$
 $\angle 2, \angle 4$ vertical \angle 's $m\angle 2 = m\angle 4$



Given $\angle 1, \angle 2$ form a straight \angle
 $\angle 2, \angle 3$ form a straight \angle

Prove $m\angle 1 = m\angle 3$

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. $\angle 1, \angle 2$ and $\angle 2, \angle 3$ form a straight \angle
$m\angle 1 + m\angle 2 = 180^\circ$ 2. $m\angle 2 + m\angle 3 = 180^\circ$ 3. $\angle 1, \angle 2$ and $\angle 2, \angle 3$ are supplementary 4. $m\angle 1 = m\angle 3$ | <p>given
def of straight \angle
def of supplementary
congruent supplements</p> |
|---|---|