4.1
4.2
Congruency

Congruency:

Congruent figures _____

_____

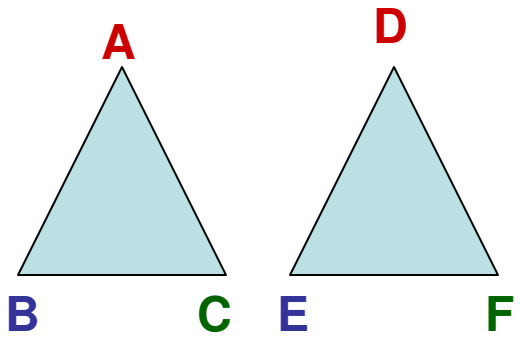
- _____

_____

_____

If $\triangle ABC \cong \triangle DEF$ then:

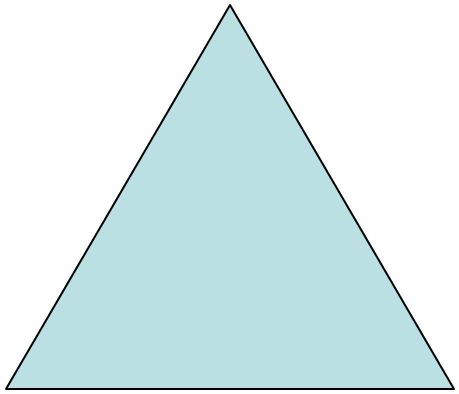
<u>Angles</u> <u>Sides</u>

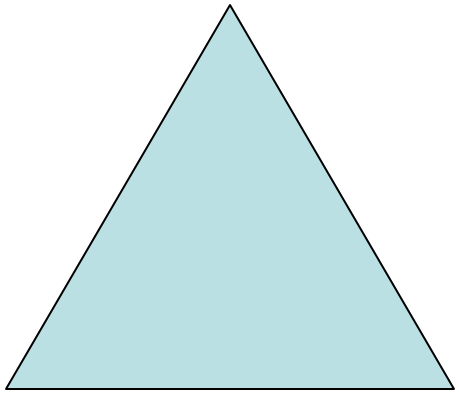


In a proof, if triangles are congruent and you plan to prove that corresponding pieces are congruent use:

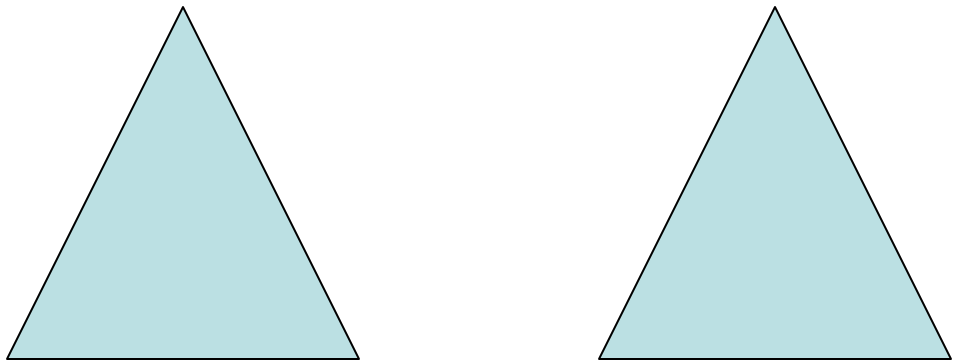
Reasons for Proving Triangles Congruent

Postulate 12: _____

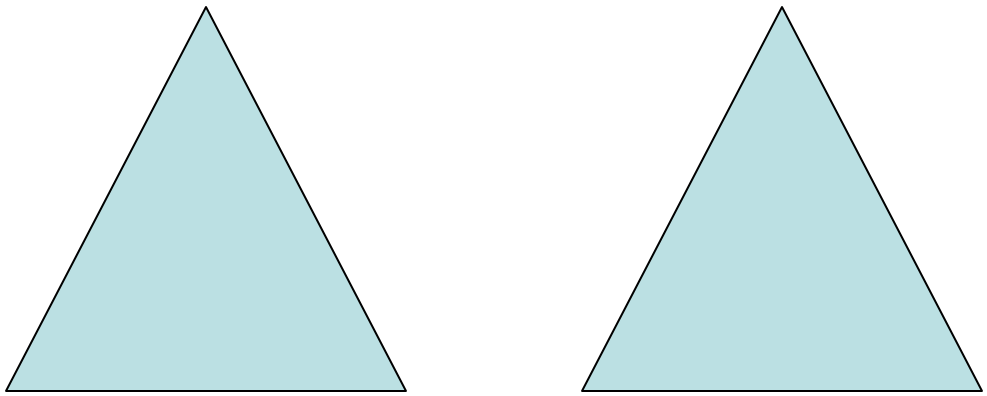




Postulate 13: _____



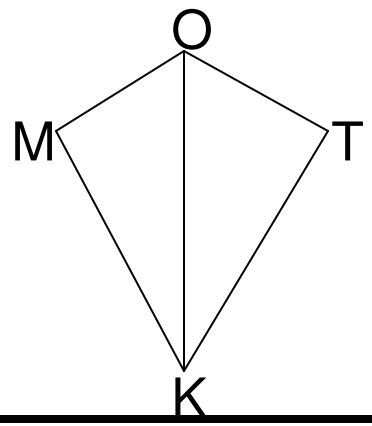
Postulate 14: _____



Given : $\overline{\text{OK}}$ bisects $\measuredangle$MOT

$\overline{OM} \cong \overline{OT}$

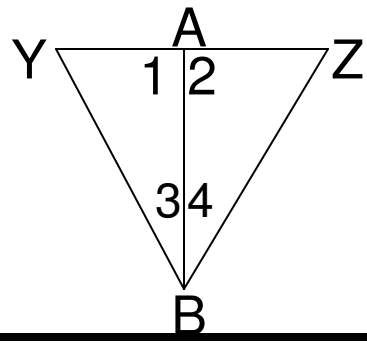
Prove : $\measuredangle MKO \cong \measuredangle TKO$



Given : $\overline{\text{BA}} \perp \overline{YZ}$

$\overline{BA}$ bisects $\measuredangle$YBZ

Prove : $\overline{BY} \cong \overline{BZ}$



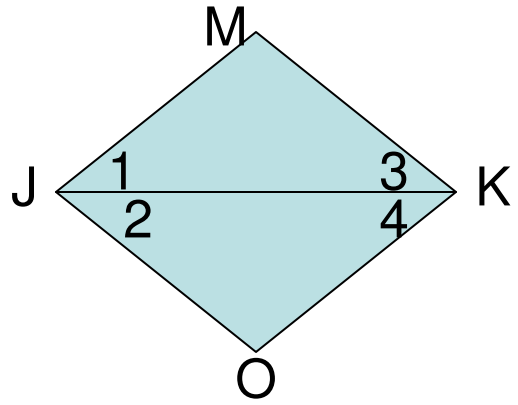
4.3

Proving other Congruencies

Given: $\overline{\text{MK}} \cong \overline{KO}$

$\overline{KJ}$ bisects $\measuredangle$MKO

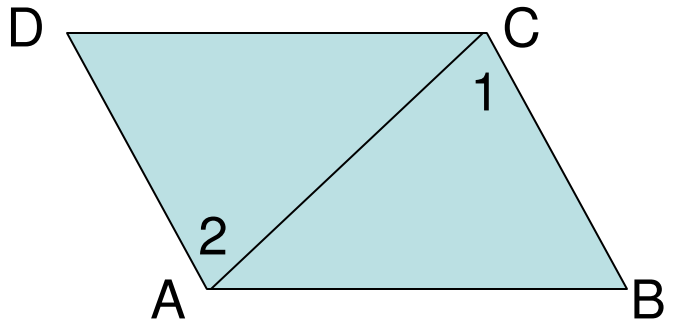
Prove: $\overline{KJ}$ bisects $\measuredangle$MJO



Given : $\overline{\text{AD}} \parallel \overline{BC}$

$\overline{\text{AD}} \cong \overline{BC}$

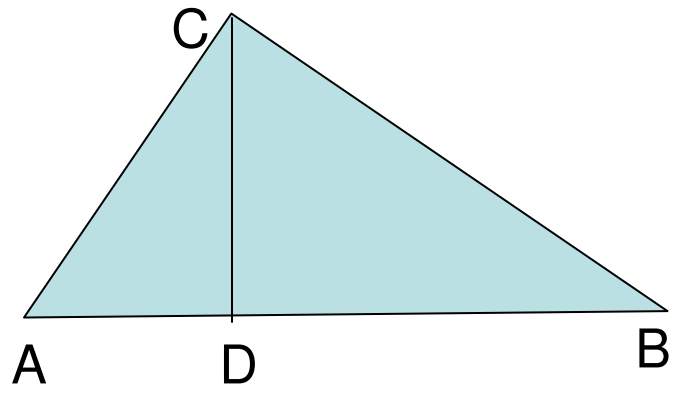
Prove : $\overline{AB} \cong \overline{CD}$



Given : $\overline{\text{CD}} \perp \overline{AB}$

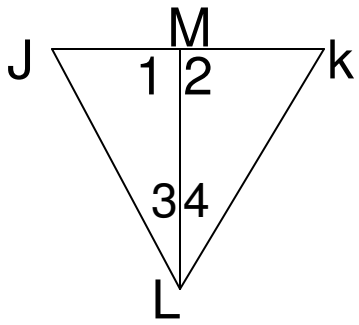
D midpoint AB

Prove : $\overline{CA} \cong \overline{CB}$



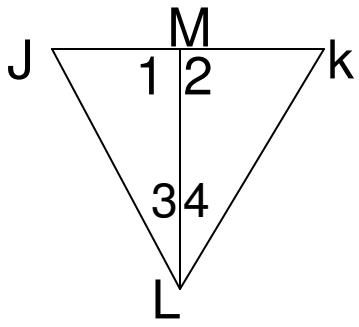
Given : $\measuredangle 1 \cong \measuredangle 2; \measuredangle 3 \cong \measuredangle 4$

Prove : *M* is midpoint of JK



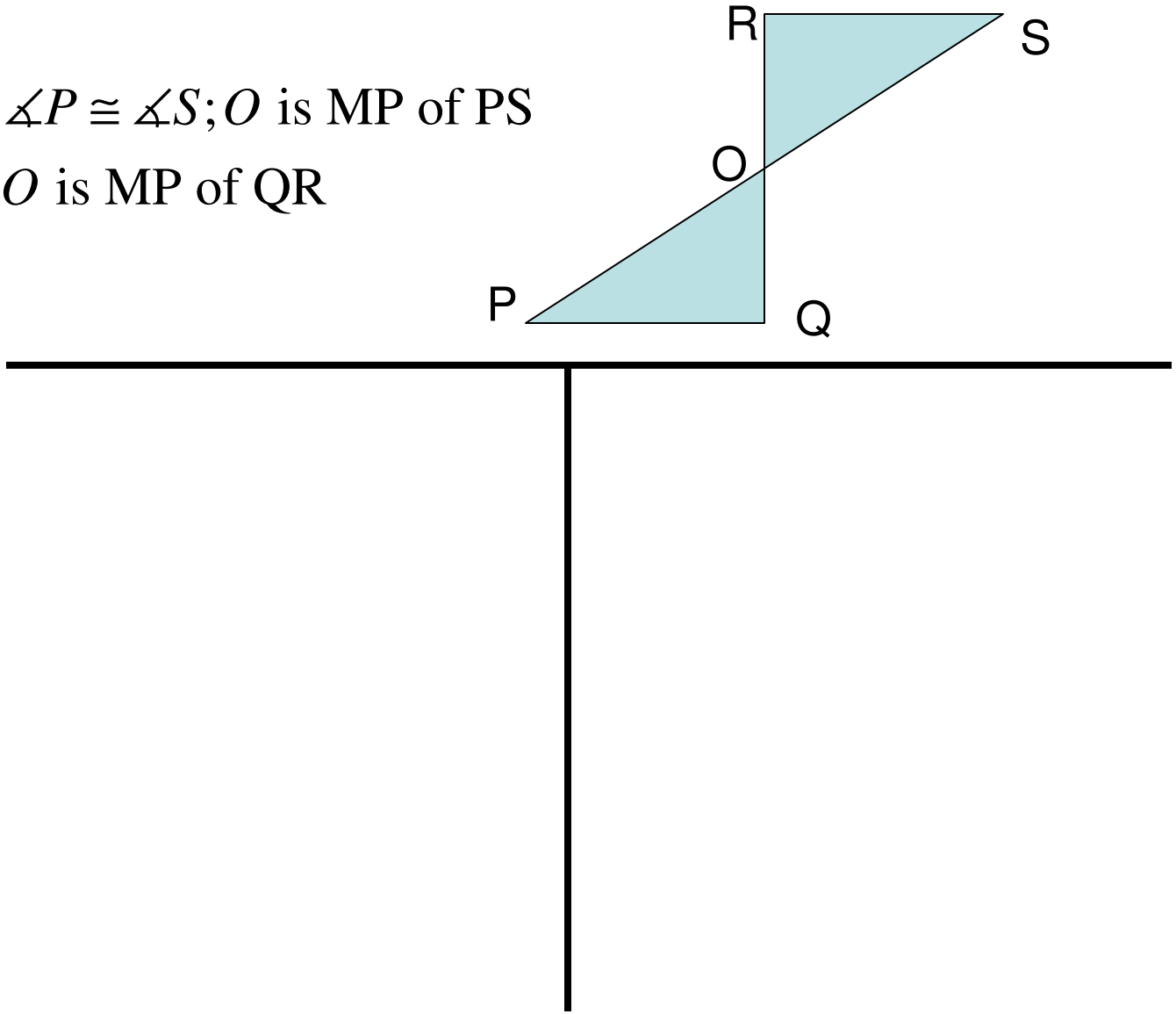
Given : $\measuredangle 1 \cong \measuredangle 2; \measuredangle 3 \cong \measuredangle 4$

Prove : $\triangle JKL$ is Isosceles



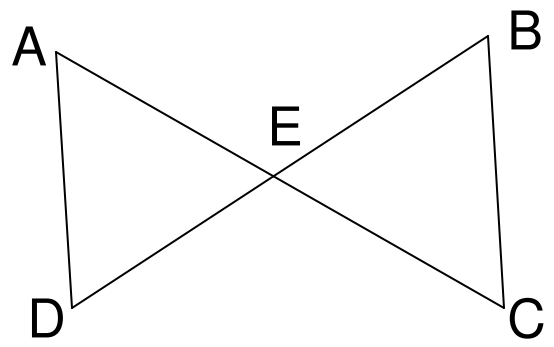
Given : $\measuredangle P \cong \measuredangle S$; O is MP of PS

Prove : O is MP of QR



Given : $\overline{\text{AE}} \cong \overline{BE}; \overline{DE} \cong \overline{CE}$

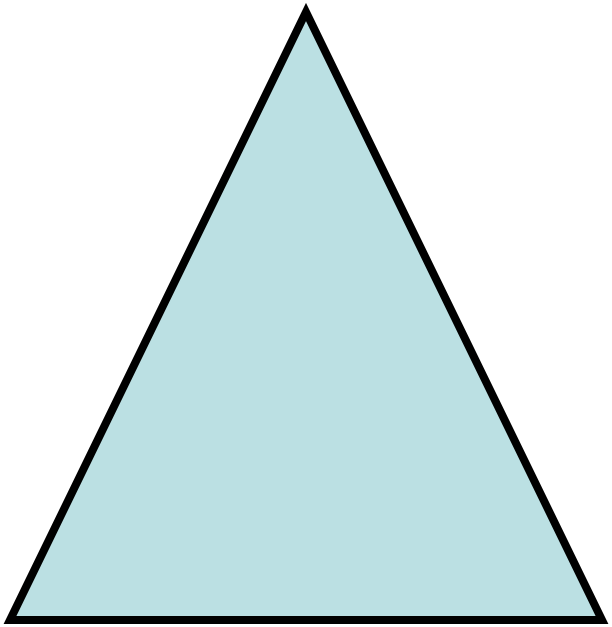
Prove : $\measuredangle D \cong \measuredangle C$



4.4

Isosceles Triangles

Lets draw an Isosceles Triangle



Def of Isosceles Triangle:

- _____

Theorem 4-1: _____

_____

_____

_____

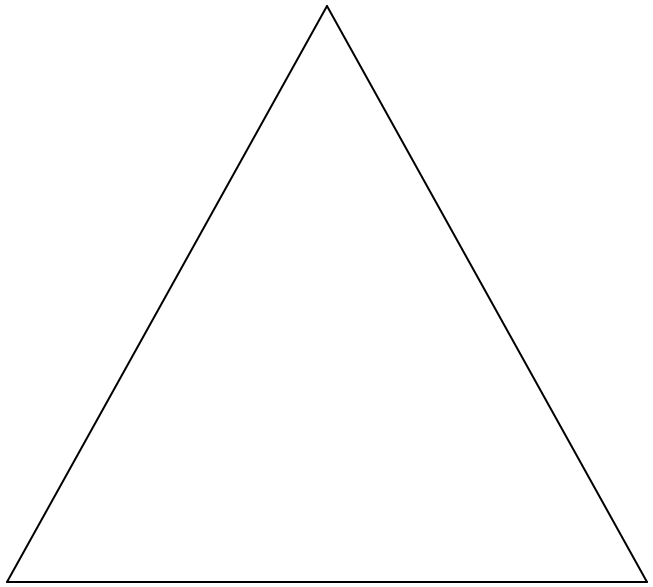
Theorem 4-2:_____

_____

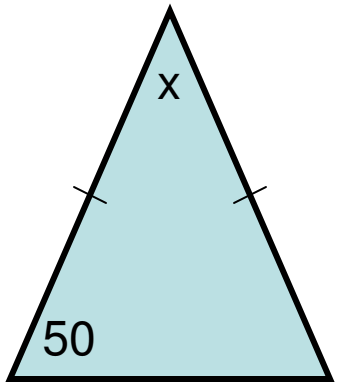
_____

_____

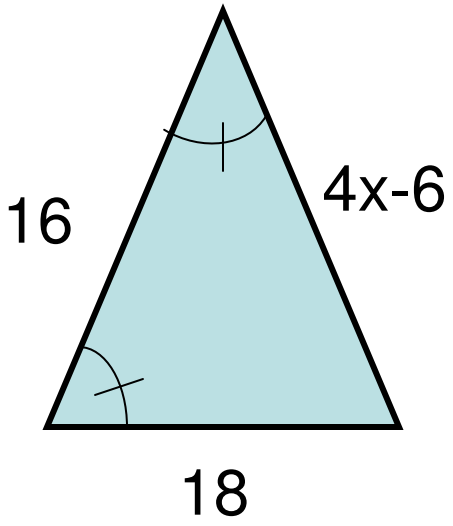
Corollary 2:



Examples:



X=_____



X=_____

4.5

Triangles Congruent

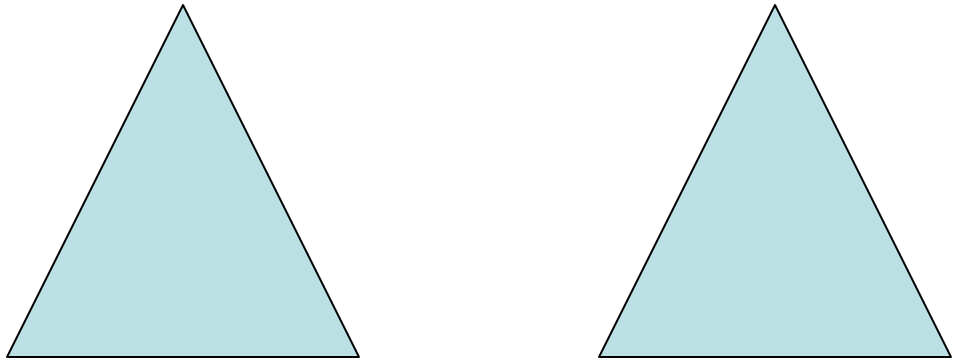
More Ways to Prove Triangles Congruent

Theorem 4.3:_____

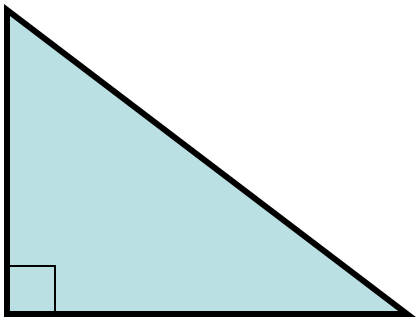
_____

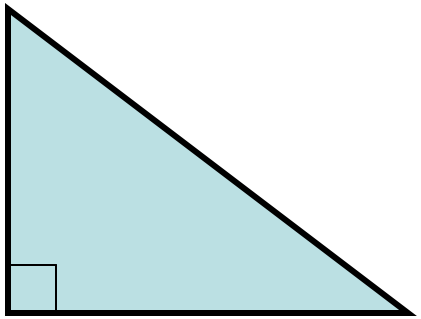
_____

_____

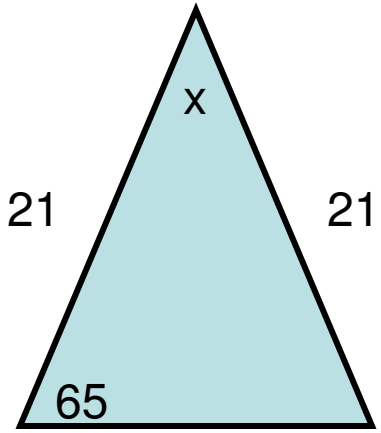


Theorem 4.4:_____

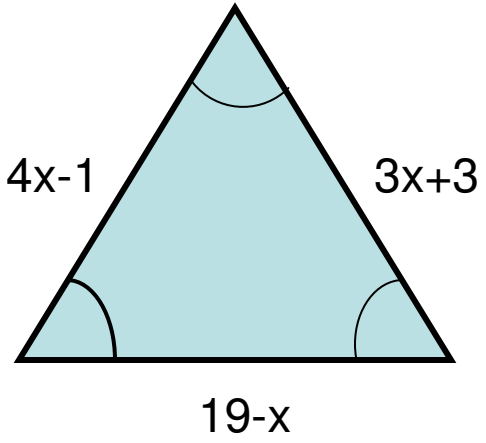




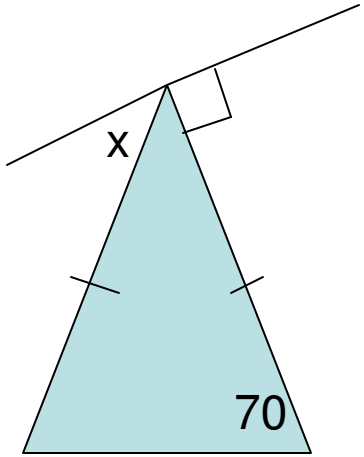
Examples:



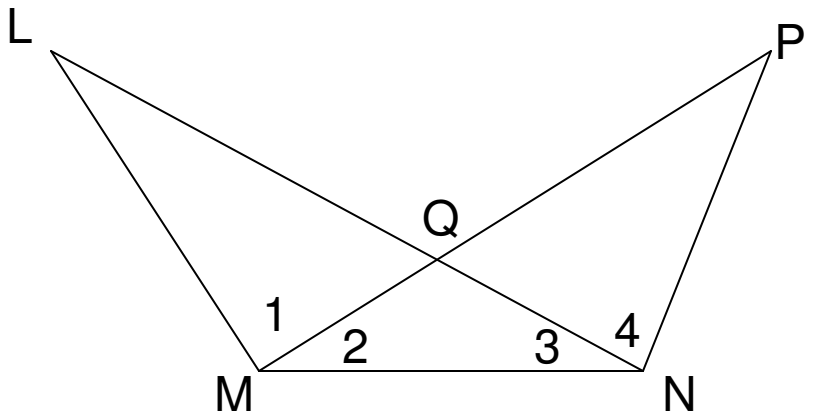
X=_____



X=_____



X=_____



If ∡1=∡2 and ∡3=∡4

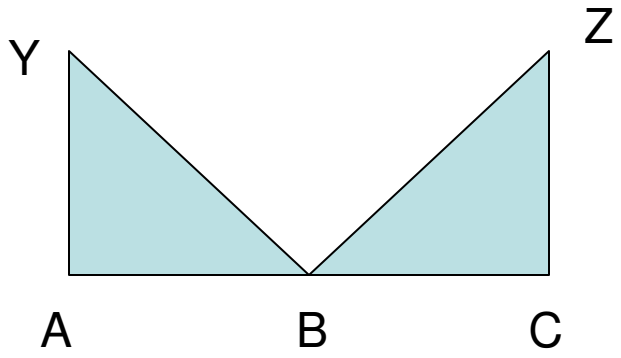
Name 2 sets of △'s that are ≅

Given : $\overline{YA} \perp \overline{AC};\ \overline{ZC} \perp \overline{AC}$

B is Midpoint of $\overline{AC}$

$\overline{\mathrm{YB}} \cong \overline{ZB}$

Prove : $\measuredangle ABY \cong \measuredangle CBZ$

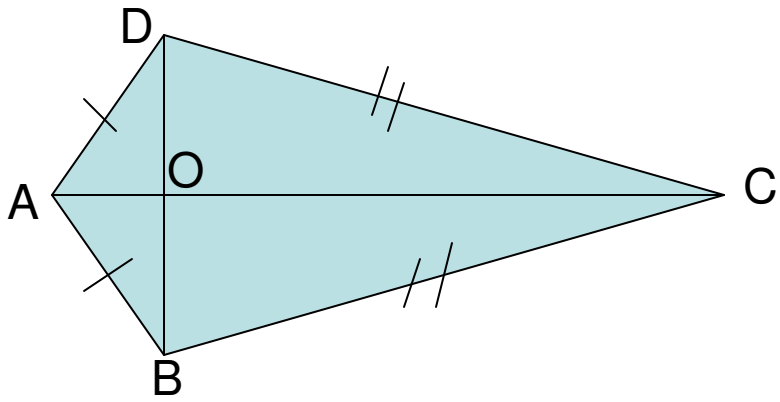


4.6

Proving More than one set of Triangles Congruent

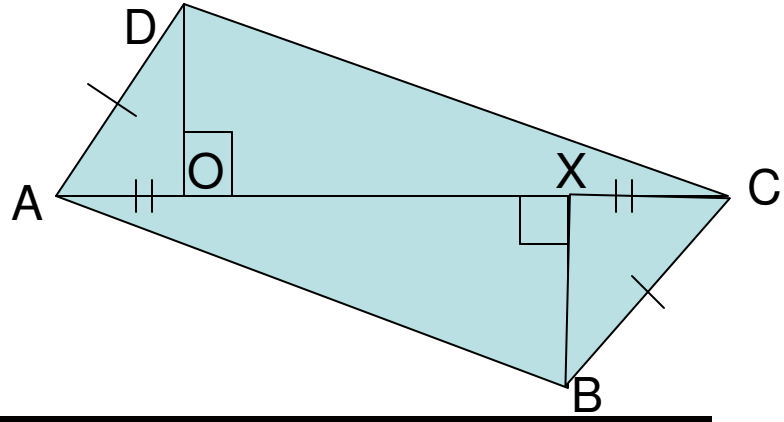
Given : *Marked*

Prove : O is Midpoint of $\overline{\text{DB}}$



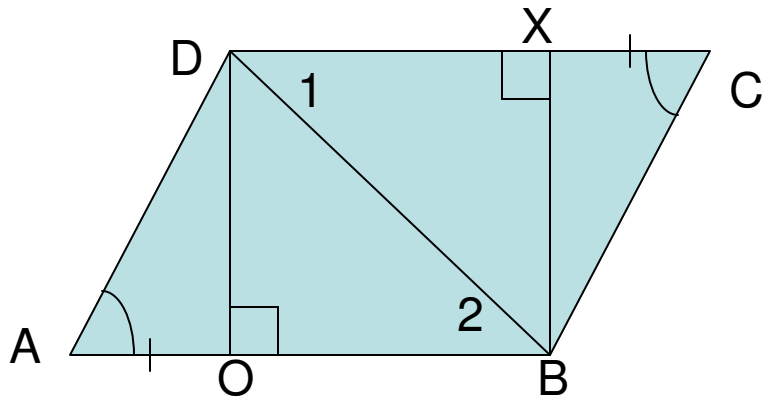
Given : *Marked*

Prove : $\overline{DC} \cong \overline{AB}$



Given : *Marked*

Prove : $\overline{DC} \parallel \overline{AB}$



4.7

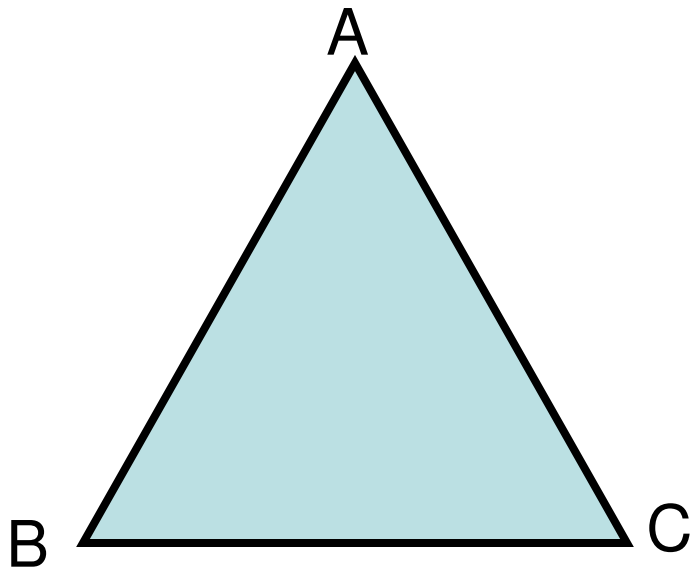
Altitude, Median and Perpendicular Bisector

Median: _____

_____

_____

- _____

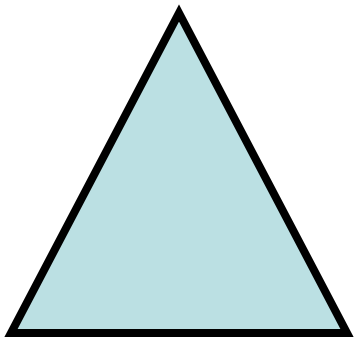


Altitude: _____

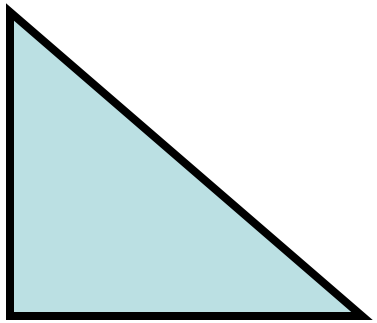
_____

• _____

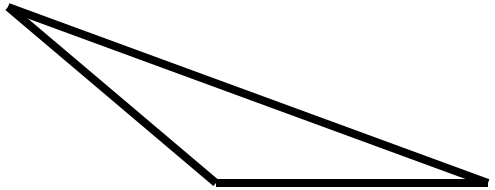
Acute



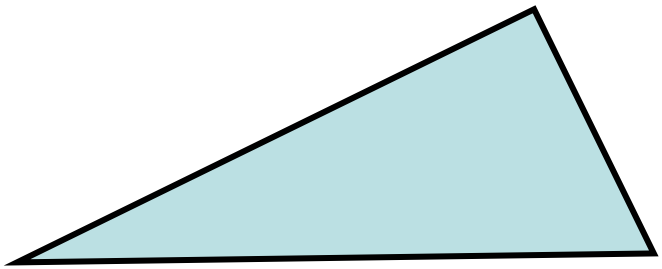
Right

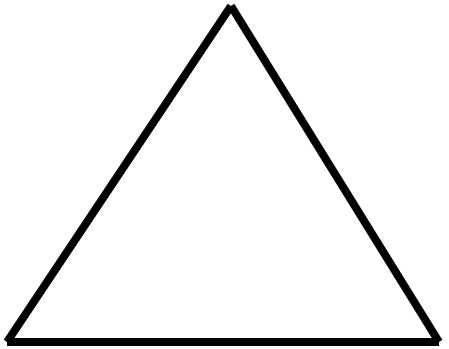


Obtuse

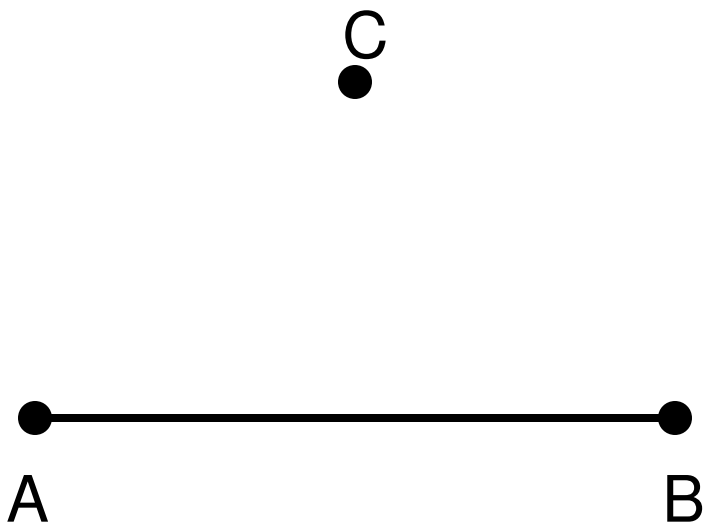


Perpendicular Bisector _____

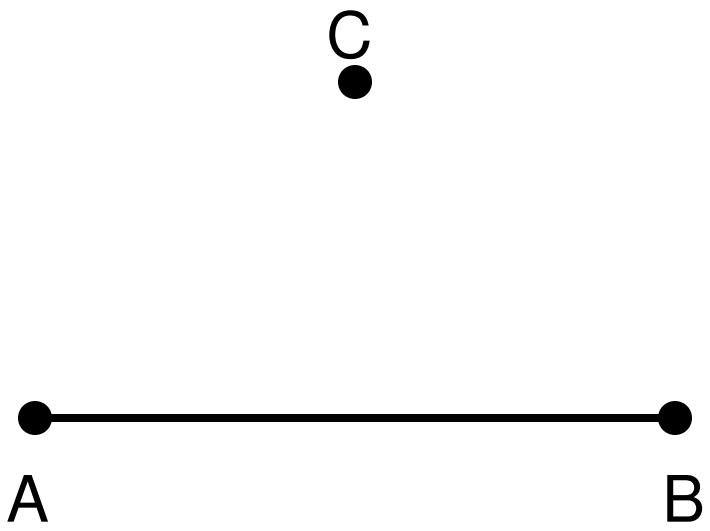




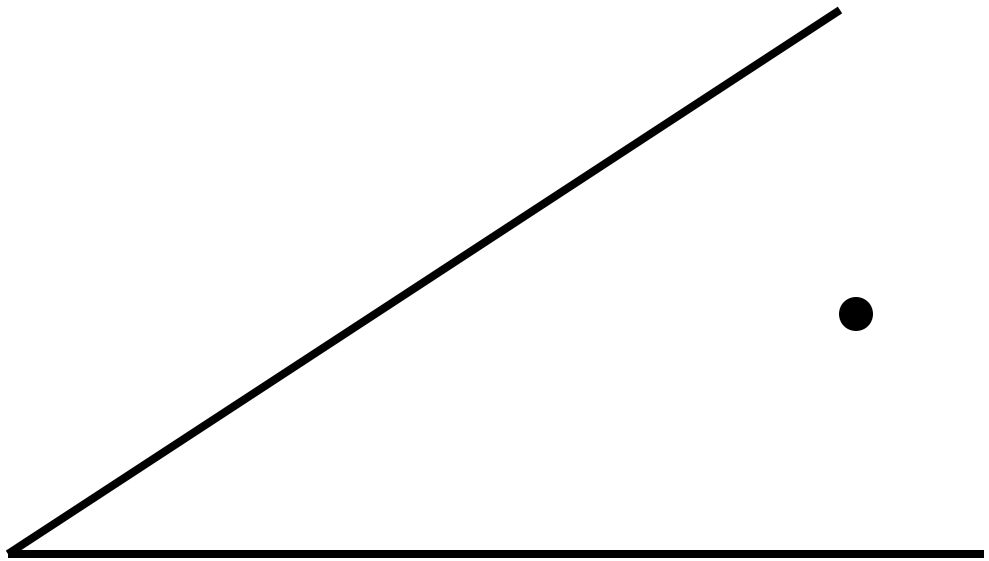
PBT – _____



CPBT – _____

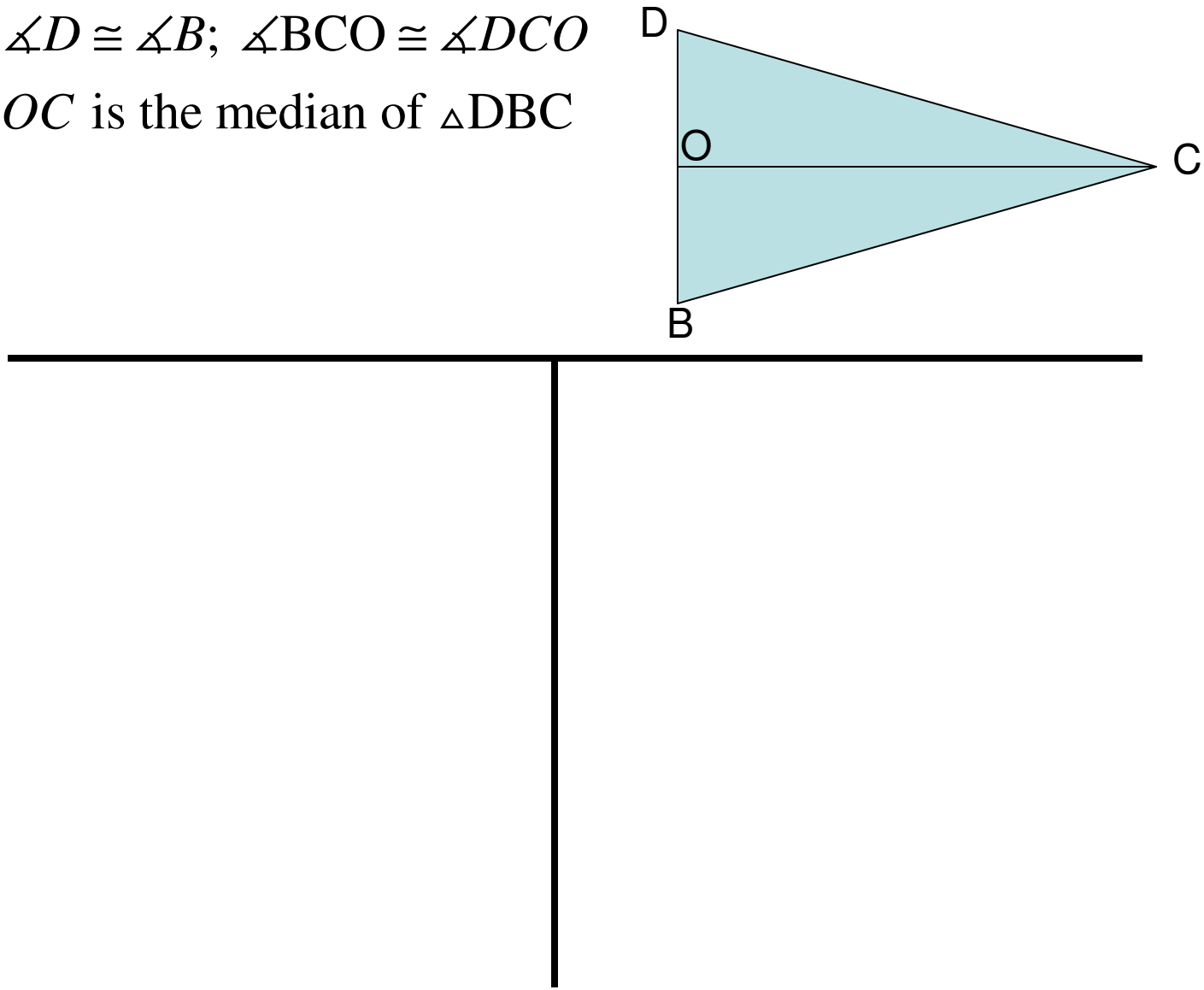


Theorem 4.7: _____



Given : $\measuredangle D \cong \measuredangle B$; $\measuredangle \mathrm{BCO} \cong \measuredangle DCO$

Prove : OC is the median of $\triangle \mathrm{DBC}$



Given : OC is an Altitude; DC=BC

Prove : *O* is Midpoint of $\overline{DB}$