

What are properties of isos. Δ ?

Isosceles Triangle.

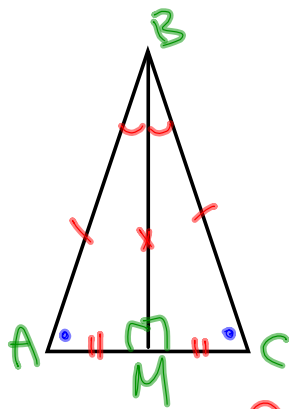
Def: a Δ with 2 $\cong$ sides.

Properties:

1) Median from vertex X is an X bisector.

2) $\angle$'s opp. from 2 $\cong$ sides are $\cong$.

3) Median = $\angle$ bisector = altitude from the vertex X .

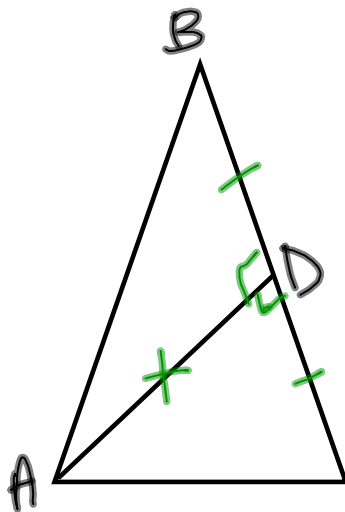


Given: $AB = BC$

$\overline{BM}$ is a median.

Prove: $\overline{BM}$ is an $\angle$ bisector of $\angle ABC$.

Statement	Reason
① $AB = BC$ $\overline{BM}$ is a median	Given.
② $\overline{AM} \cong \overline{MC}$	A Median cuts a line seg in 2 $\cong$ parts.
③ $\overline{BM} \cong \overline{BM}$	reflexive.
④ $\triangle ABM \cong \triangle CBM$	SSS
⑤ $\angle ABM \cong \angle CBM$	CPCTC
⑥ $\overline{BM}$ is an $\angle$ bisector of $\angle ABC$	An $\angle$ bisector cuts $\angle$ in 2 $\cong$ parts.
⑦ $\angle A \cong \angle C$	CPCTC
⑧ $\angle BMA \cong \angle BMC$	"
⑨ $\angle BMA$ is suppl. to $\angle BMC$.	linear pair
⑩ $m\angle BMA = m\angle BMC = 90^\circ$	When 2 $\cong$ $\angle$'s are suppl to each other they are 90° .
⑪ $\overline{BM}$ is an altitude.	An alt. forms 90° w/ its base.



Given: $AB = BC \neq AC$

$\overline{AD}$ is a median

Prove: $\overline{AD}$ is not an altitude.

Statement	Reason
① $AB = BC \neq AC$ $\overline{AD}$ is a median	Given
② $\overline{AD}$ is an altitude	Assumption
③ $\angle ADC \neq \angle ADB$ one right $\angle$'s.	Alt. forms Rt. $\angle$'s w/ its base.
④ $\angle ADC \cong \angle ADB$	All Rt $\angle$'s are $\cong$.
⑤ $\overline{BD} \cong \overline{CD}$	A median cuts a side into 2 $\cong$ parts.
⑥ $\overline{AD} \cong \overline{AD}$	reflexive.
⑦ $\triangle ABD \cong \triangle ACD$	SAS
⑧ $AB = AC$	CPCTC.
⑨ $\overline{AD}$ is not an alt.	Contradiction b/w ① & ⑧