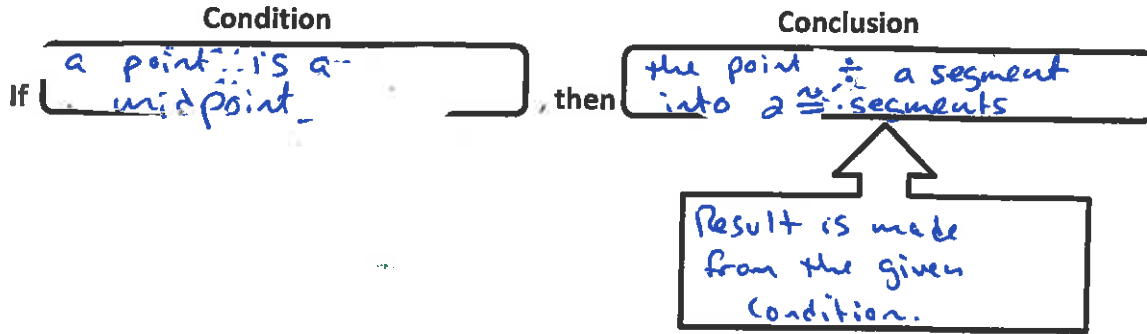


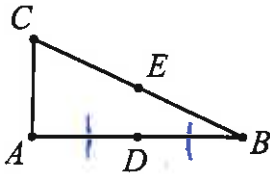
Drawing Conclusions -  
 Midpoints, Bisectors, Transitive, Reflexive

Midpoint: divides segment into 2 congruent segments.

As a conditional:



Ex:



Known Fact: D is the midpoint of  $\overline{AB}$ . ← Condition

Which conclusion can now be called a fact?

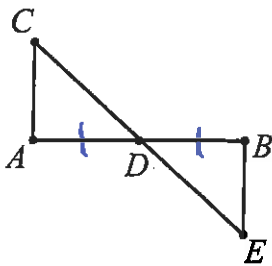
Conclusion A:  $\overline{AD} \cong \overline{DB}$       Conclusion B:  $\overline{CE} \cong \overline{EB}$

Segment Bisector: goes through the midpt. of a segment

As a conditional:



Ex:



Known Fact:  $\overline{CE}$  bisects  $\overline{AB}$ . ← Condition

Which conclusion can now be called a fact?

Conclusion A: D is midpoint of  $\overline{AB}$ .

Conclusion B: D is midpoint of  $\overline{CE}$ .

"Rain-Bo" Connection

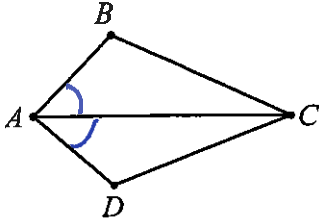


Angle Bisector: o an angle into 2  $\cong$   $\angle$ 's.

As a conditional:

Condition	Conclusion
If Ray is an <del>segment</del> angle Bisector	then it <del>is</del> <sup>will</sup> divide the angle into 2 $\angle$ 's.

Ex:



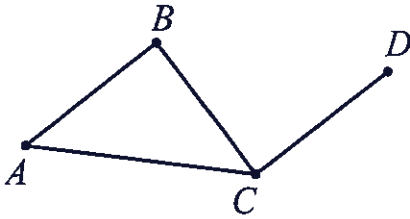
Known Fact:  $\overline{AC}$  bisects  $\angle BAD$ . ← Condition

Which conclusion can now be called a fact?

Conclusion A:  $\angle BAC \cong \angle DAC$ .

Conclusion B:  $\angle BCA \cong \angle DCA$ .

Transitive Property of Equality: If  $a=b$  and  $b=c$ , then  $a=c$  (Chain Rule)



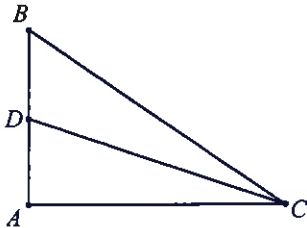
Known Facts:  $\overline{AB} \cong \overline{BC}$   
 $\overline{BC} \cong \overline{CD}$  ← common link

Which conclusion can now be called a fact?

Conclusion A:  $\overline{AB} \cong \overline{CD}$

Conclusion B:  $\overline{AB} \cong \overline{AC}$

Reflexive Property of Equality: a figure is always  $\cong$  to itself.



Known Facts: (only the picture)

Which conclusions can now be called a fact?

Conclusion A:  $\angle A \cong \angle A$

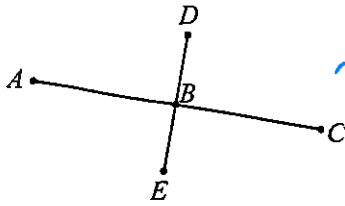
Conclusion B:  $\overline{AC} \cong \overline{AC}$

Conclusion C: D is the midpoint of  $\overline{AB}$ .

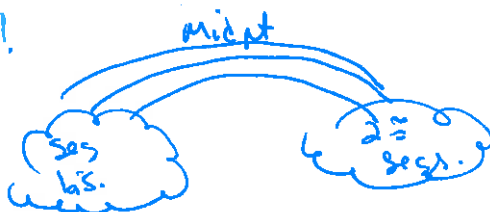
no!

Drawing Conclusions Using a Two Column Format:

Ex: Given:  $\overline{DE}$  bisects  $\overline{AC}$



Rain bow connection!



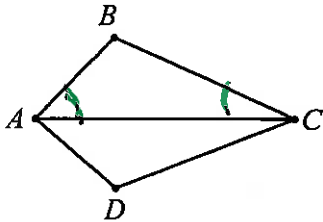
- IF  $\overline{DE}$  bisects  $\overline{AC}$   
 then  $B$  midpt of  $\overline{AC}$   
 IF  $B$  midpt of  $\overline{AC}$   
 then  $\overline{AB} \cong \overline{CB}$

Statements

(Why)  
Reasons

- ① Given  
 IF... then...  
 ② Seg bisector goes through a midpt.  
 IF... then...  
 ③ midpt makes 2  $\cong$  segments.

Ex: Given:  $\overline{AC}$  bisects  $\angle BCD$   
 $\angle BCA \cong \angle BAC$



Statements

Reasons

- ①  $\overline{AC}$  bisects  $\angle BCD$  ① Given.  
 ②  $\angle BAC \cong \angle DAC$  ②  $\angle$  bisector  $\div$   $\angle$  into 2  $\cong$   $\angle$ 's.  
 ③  $\angle BCA \cong \angle BAC$  ③ Given  
 ④  $\angle BCA \cong \angle DAC$  ④ Transitive.