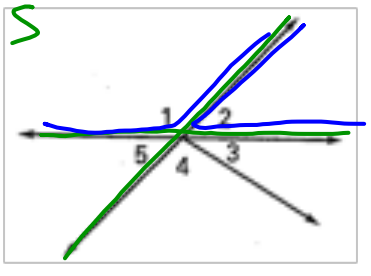
1. AB=CD is an example of equality
2. If JK=LM, then $JK \cong LM$ is an example of congruence
3. $\angle D + \angle E = \angle F$ is an example of angle addition
4. If M is the point halfway between P and Q, then M is the midpoint
5. Two angles that have a sum of 90° are called complementary
6. substitution is where two equal values can be replaced for one another
7. RS=RS is an example of reflexive
8. Angles next to each other that share a side are called adjacent angles
9. AB+BC=AC is an example of segment addition
10. If $\angle D + \angle E = 180^\circ$, then $\angle D$ and $\angle E$ are called supplementary angles

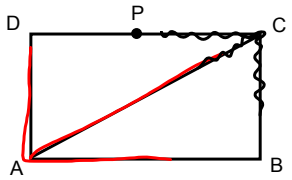
State why each of the following statements are true

11. $\angle 2 \cong \angle 5$ Vertical ∠s



12. $\angle 1 + \angle 2 = 180^\circ$ Linear Pair

Explain what you know based on each statement?
How do you know that?



- P is the midpoint of DC
- AC=AC
  AC is a bisector of $\angle A$ and $\angle C$
- $DA \cong CB$

P is midpt DC
given
↓
DP = PC
def of midpt
↓
$\overline{DP} \cong \overline{PC}$
congruence

AC=AC
reflexive
↓
$\overline{AC} \cong \overline{AC}$
congruence

AC bisects ∠A
given
↓
m∠DAC = m∠CAB
bisector
↓
∠DAC ≅ ∠CAB
congruence

AC bisects ∠C
given
↓
m∠DCA = m∠ACB
bisector
↓
∠DCA ≅ ∠ACB
congruence

DA ≅ CB
given
↓
DA = CB

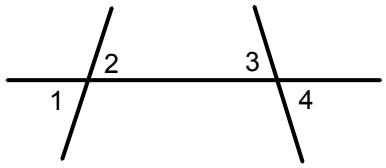
When we explain how we know a statement is true, we are proving what we know. We can organize statements and their reasons in something called a proof.

When writing a proof we always start with the *GIVEN statements. Then we write what we know based on those statements.

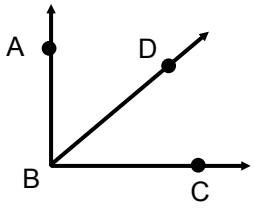
* flowcharts
  2 column
  } types of proofs

"Observables"
- vertical angles
- reflexive
- linear pair

Given that $\angle 2 \cong \angle 3$, prove that $\angle 1 \cong \angle 4$



Given $m\angle ABD = 45^\circ$ and BD is a bisector of $\angle B$, prove that $\angle ABD$ and $\angle DBC$ are complementary angles.



Given that H is the midpoint of GI and I is the midpoint of HJ, prove that $GH \cong IJ$