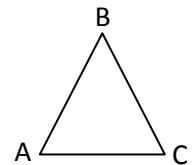


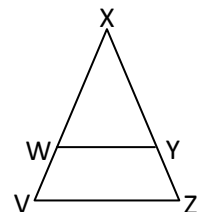
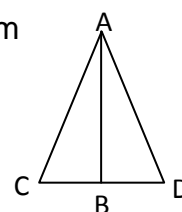
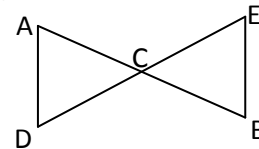
Unit 6 Facts: Steps for Proving Triangles Congruent

- **Mark the “Given” information on the picture.** Some information to be deduced:
- Given an Angle Bisector:
 - Mark the congruent angles on the diagram
 - Statement example: $\angle ABC \cong \angle CBD$
 - Reason: *Def. of Angle Bisector*
- Given a Segment Bisector:
 - Mark the congruent segments on the diagram
 - Statement example: $\overline{AC} \cong \overline{CB}$
 - Reason: *Def. of Segment Bisector*
- Given a Midpoint:
 - Mark the congruent segments on the diagram
 - Statement example: $\overline{AC} \cong \overline{CB}$
 - Reason: *Def. of Midpoint*
- Given Perpendicular Lines:
 - Mark right angle on diagram
 - Statement $\angle ABC$ is a right angle, $\angle ABD$ is a right angle
example:
 - Reason: *Def of Perpendicular lines*
- Given Parallel Lines:
 - Mark congruent angles
 - Statement $\angle 1 \cong \angle 2$
example:
 - Reason: *Alt Int \angle s Thm*
- Isosceles Triangles:
 - Mark congruent segments and congruent angles
 - Statement: $\overline{AB} \cong \overline{BC}$ and $\angle A \cong \angle C$
 - Reason: *Def of Isosceles Triangle (for congruent segments)
and Isosceles Triangle Theorem (for congruent \angle 's)*



2. Look for congruencies **not in Given.**

- Vertical Angles: (Vertical angles form an “X” and the angles across from each other are \cong)
 - Mark congruent angles on the diagram
 - Statement: $\angle ACD \cong \angle BCE$
 - Reason: *Vertical Angles Theorem*
- Shared lines, segments, or angles:
 - Mark congruent segments or angles on the diagram
 - Statement: $\overline{AB} \cong \overline{AB}$ or $\angle X \cong \angle X$
 - Reason: *Reflexive Property*



3. Look at what you marked in the picture: how are the triangles congruent?

- SSS: 3 sides are marked congruent
- SAS: 2 sides and an included angle are marked congruent
- ASA: 2 angles and an included side are marked congruent
- AAS: 2 consecutive angles and a non-included side are marked congruent
- HL: In 2 right triangles, a leg and the hypotenuse are marked congruent

4. Look at “Prove Line”. Were you trying to prove two triangles are congruent?

If so, then you are done. If not, then...

- Proving certain parts are congruent:
 - Statement: $part \cong part$
 - Reason: CPCTC
- Proving lines parallel:
 - Statement: $line // line$
 - Reason: (Could be any of the following):
 - Converse of alt int \angle 's theorem
 - Converse of alt ext \angle 's theorem
 - Converse of ss int \angle 's theorem
 - Converse of ss ext \angle 's theorem
 - Converse of corresponding \angle 's postulate
- Proving other things besides parts congruent (always goes one step beyond CPCTC):
 - Statement example: C is the midpoint of \overline{AC}
 - Reason: Definition of midpoint