

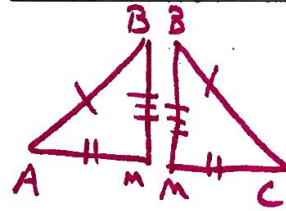
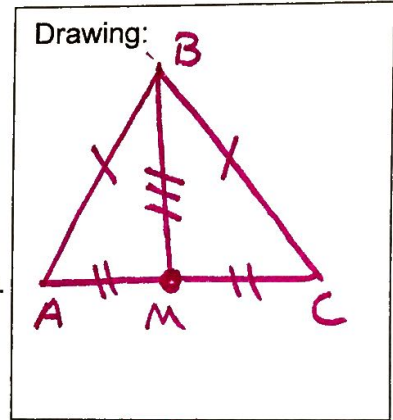
Lesson 4 Congruent Triangles

Part 1:

Zac and Sione are exploring isosceles triangles.

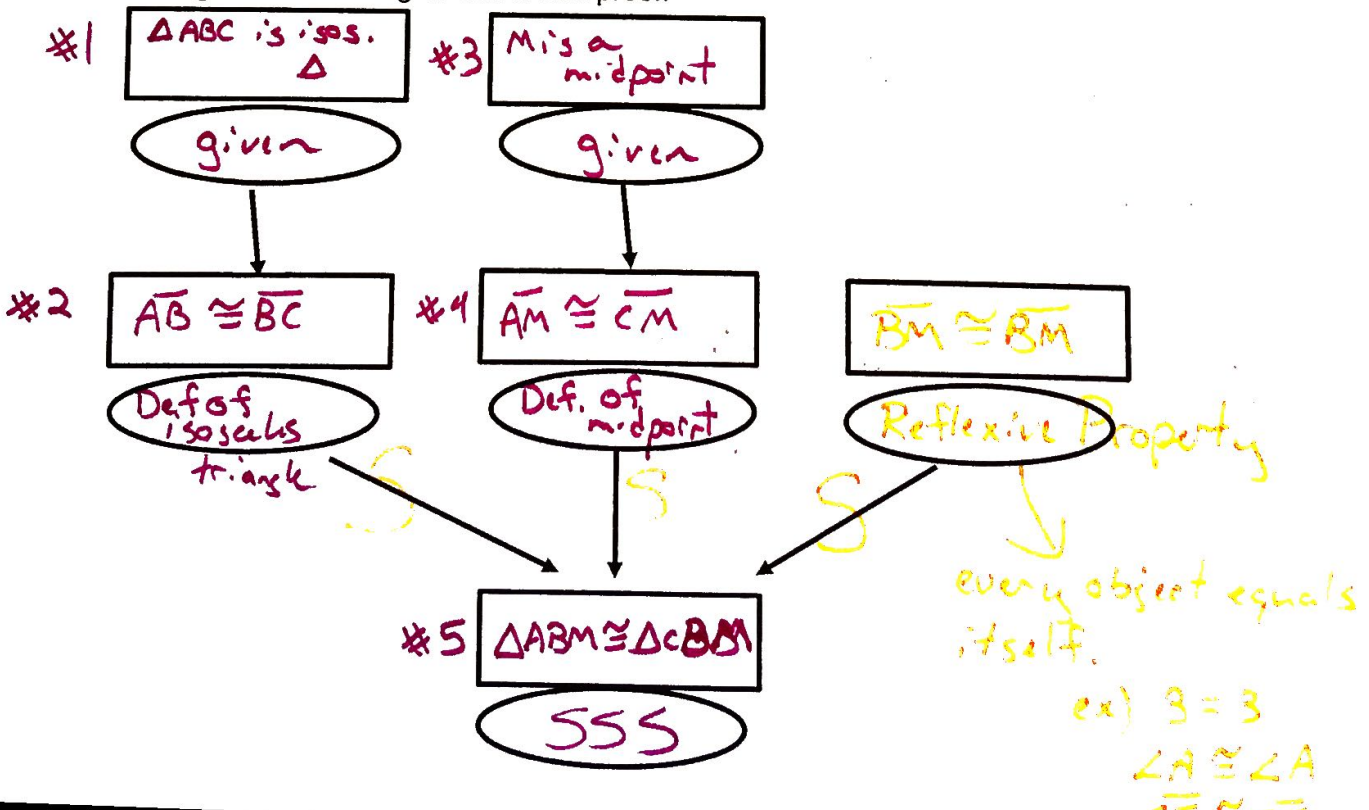


1. Draw an isosceles triangle. Label it $\triangle ABC$, with B, the vertex angle, at the top.
2. List what corresponding parts are congruent and mark your picture. How do you know?
 $\overline{AB} \cong \overline{BC}$ because isosceles \triangle have 2 equal sides
3. Connect the vertex angle to the midpoint of the opposite side. This segment is called a median. Name the midpoint M.
4. List what corresponding parts are congruent and mark your picture. How do you know?
 $\overline{AM} \cong \overline{CM}$



5. Are $\triangle ABM$ and $\triangle CBM$ congruent? How do you know?
 yes, SSS 3rd side is the same segment in both triangles
6. Is \overline{BM} a line of symmetry? How do you know?
 yes, line \neq splits the object in half so that each side is the same

Let's organize our thoughts into a flow proof.

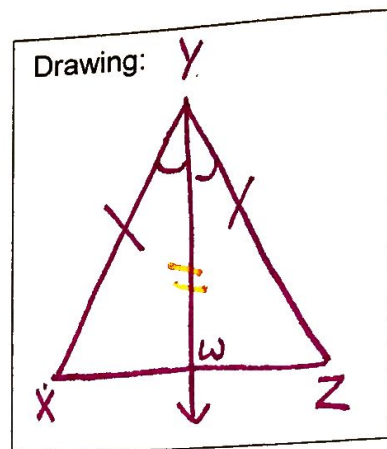


New * Vocab *

Part 2:

- Draw an isosceles triangle. Label it triangle XYZ, With Y, the vertex angle, at the top.
- List what corresponding parts are congruent and mark your picture. How do you know?

$\overline{XY} \cong \overline{YZ}$ because isosceles Δ have 2 equal sides



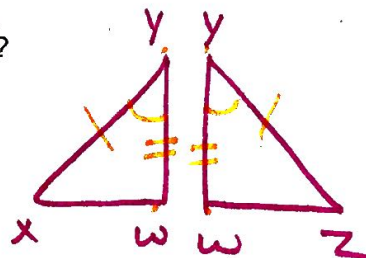
- Draw the angle bisector of angle Y. Name the intersection point W.

- List what corresponding parts are congruent and mark your picture. How do you know?

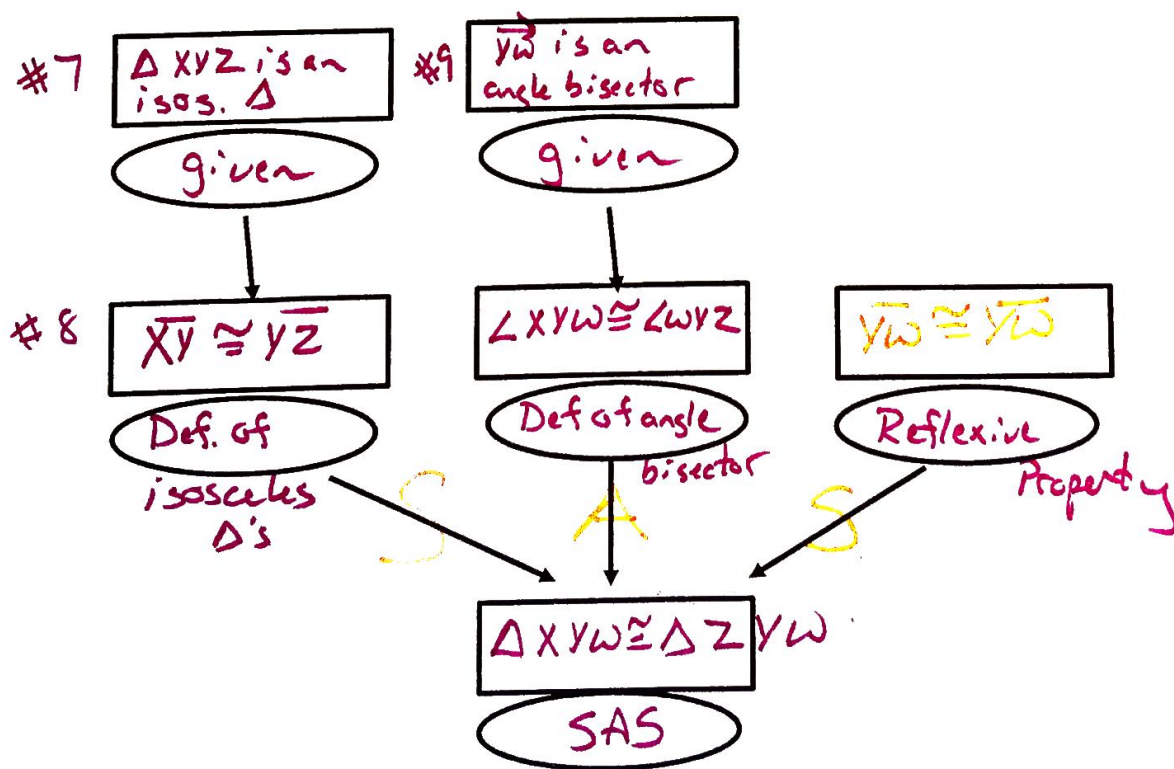
$\angle XYW \cong \angle WYZ$ because $\angle Y$ was split into 2 equal pieces

- Are ΔXYW and ΔZYW congruent? How do you know?

yes by SAS



Let's organize our thoughts into a flow proof.

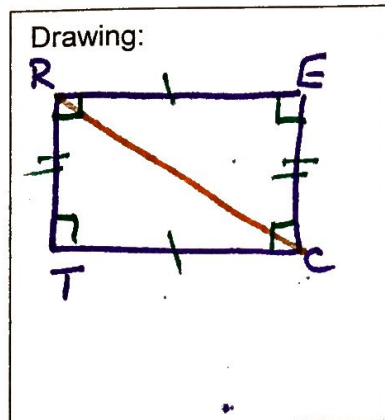


Part 3:

Like Zac, you have experimented with lines of symmetry and rotational symmetry.

12. Draw Rectangle RECT. Since rectangles have rotational symmetry, list what corresponding parts are congruent. Mark your picture.

$\angle R, \angle E, \angle C, \angle T$ are right angles
 $\overline{RE} \cong \overline{TC}$
 $\overline{RT} \cong \overline{EC}$



13. Draw a diagonal line to divide the rectangle into two triangles.

14. Are your two triangles congruent? How do you know?

yes SAS ✓
 SSS need $\overline{RC} \cong \overline{RC}$
 HL need $\overline{RC} \cong \overline{RC}$ (hyp)

Let's organize our thoughts into a flow proof.

