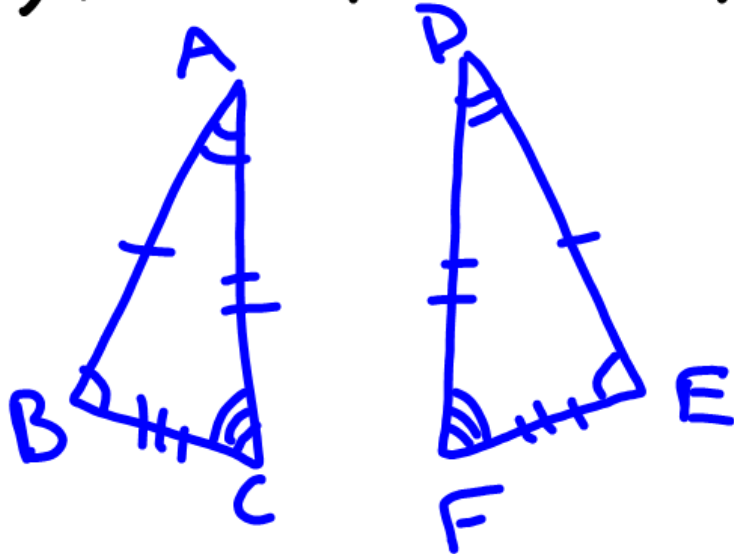


Warm-up

1) Name the corresponding \angle 's & Sides. Then write a congruency for the triangles.



$$\begin{array}{l}
 \angle A \cong \angle D \\
 \angle B \cong \angle E \\
 \angle C \cong \angle F
 \end{array}
 \left. \begin{array}{l}
 \overline{AB} \cong \overline{DE} \\
 \overline{BC} \cong \overline{EF} \\
 \overline{AC} \cong \overline{DF}
 \end{array} \right\}$$

$$\begin{array}{l}
 \triangle BCA \cong \triangle EFD \\
 \triangle ABC \cong \triangle DEF
 \end{array}$$

Qu: 2 Tomorrow?

4.3 Prove Δ 's Congruent by SSS

*Side-Side-Side

Note:

Properties of Congruence

Reflexive

$$\Delta ABC \cong \Delta ABC$$

$x = x$

Symmetric

$$\Delta ABC \cong \Delta DEF, \text{ so } \Delta DEF \cong \Delta ABC$$

$x = y$ $y = x$

Transitive

$$\text{If } \Delta ABC \cong \Delta DEF \text{ \& } \Delta DEF \cong \Delta XYZ,$$

then $\Delta ABC \cong \Delta XYZ$.

$$\text{If } x = y \text{ \& } y = z, \text{ then } x = z$$

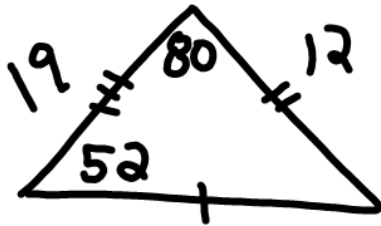
For SSS,



*If 3 sides of 2 Δ 's are equal to each other, the 2 Δ 's are Congruent.

(So Corresponding Sides & angles are congruent/equal)

Example



* The sides are \cong .
So Δ 's are \cong by SSS

$$Y = 19$$

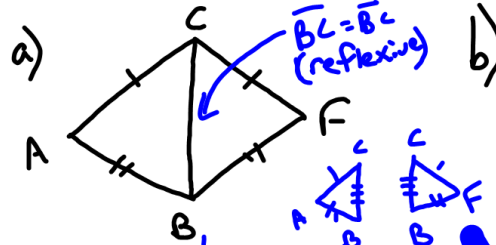
For X , all \angle 's in Δ
Sum to 180° .

$$X = 180 - 52 - 80$$

$$X = 48^\circ$$

Find X & Y

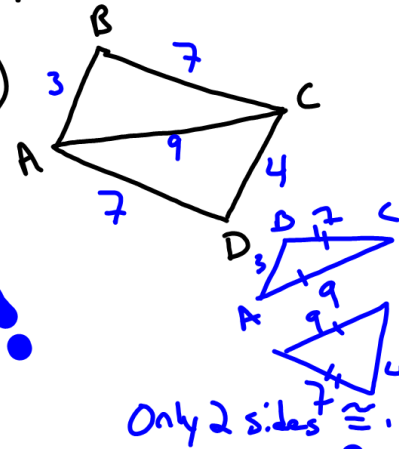
Are the Δ 's Congruent?



*Need 3 sides

$$\begin{aligned} \overline{AC} &\cong \overline{AC} \\ \overline{AB} &\cong \overline{AD} \\ \overline{BC} &\cong \overline{DC} \end{aligned}$$

YES!

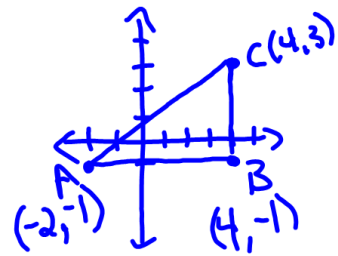


Only 2 sides \cong .

NO!

Given ΔDEF , is it \cong to ΔADC ?

$$\begin{aligned} DE &= 4 \\ EF &= 6 \\ DF &= 7.211 \end{aligned}$$



$$AB = 6$$

$$BC = 4$$

$$AC = 7.211$$

$$\begin{aligned} AC &= \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \\ &= \sqrt{(-2 - 4)^2 + (-1 - 3)^2} \\ &= \sqrt{(-6)^2 + (-4)^2} \\ &= \sqrt{36 + 16} = \sqrt{52} = 7.211 \end{aligned}$$

Yes, they are \cong