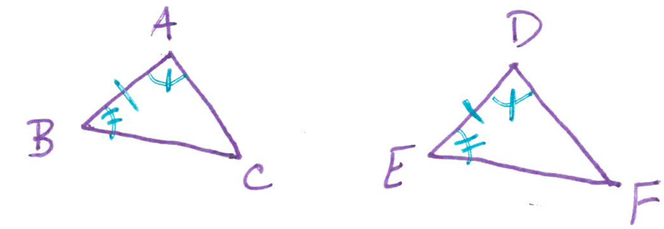
Thm 30



Given/Let $\triangle ABC$ and $\triangle DEF$
such that
$\angle BAC \cong \angle EDF$ and
$\angle ABC \cong \angle DEF$ and
$\overline{AB} \cong \overline{DE}$

So $m\angle BAC = m\angle EDF$ (1)
$m\angle ABC = m\angle DEF$ (2)
$AB = DE$ (3)
(3.5)
By Ax 3, there exists an isometry, f, such that
$f(A) = D$ (4)
$f(B) \in \overrightarrow{DE}$ (5)
$f(C)$ is on the side of $\overleftrightarrow{DE}$ that includes F. (6)

By Thm 26, (3.5, 4, 5, 3) $f(B) = E$ (7)
By Thm 27 (1, 3.5, 4, 5, 6) $f(C) \in \overrightarrow{DF}$ $\angle BAC$ (8)
By Thm 27 (2, 3.5, 7, 4, 6) $f(C) \in \overrightarrow{EF}$ $\angle ABC$ (9)
$f(A) = D$, so $f(A) \in \overrightarrow{ED}$

$F \in \overrightarrow{DF} \cap \overrightarrow{EF}$ $f(C) \in \overrightarrow{DF} \cap \overrightarrow{EF}$ (10)
so by Thm 10 $f(C) = F$ (11)
By (4, 7, 11) and Thm 18(a), $\triangle ABC \cong \triangle DEF$