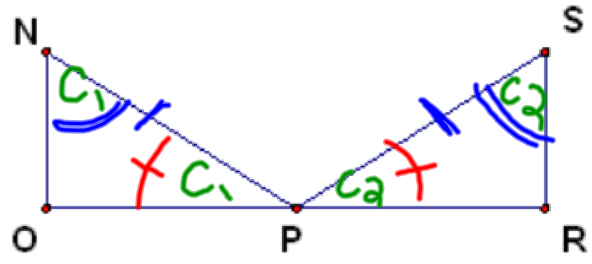
HW 3.2

#11

Given: $\angle N$ is comp. to $\angle NPO$,
$\angle S$ is comp. to $\angle SPR$
$\angle NPO \cong \angle SPR$
$\overline{NP} \cong \overline{SP}$

Prove: $\triangle NOP \cong \triangle SRP$

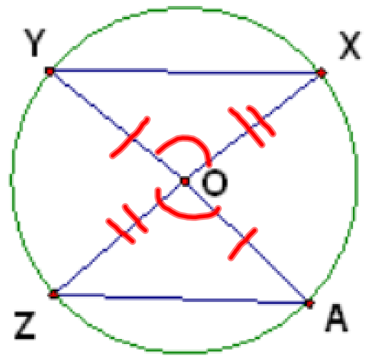


Statements	Reasons
1. Given: $\angle N$ is comp. to $\angle NPO$, $\angle S$ is comp. to $\angle SPR$, $\angle NPO \cong \angle SPR$, $\overline{NP} \cong \overline{SP}$	1. given
2. $\angle N \cong \angle S$	2. comp. of $\cong$ $\angle$s are $\cong$
3. $\triangle NOP \cong \triangle SRP$	3. ASA (2, 1, 1)

#12

Given: O is the midpoint of $\overline{AY}$
O is the midpoint of $\overline{ZX}$

Prove: $\triangle ZOA \cong \triangle XOY$

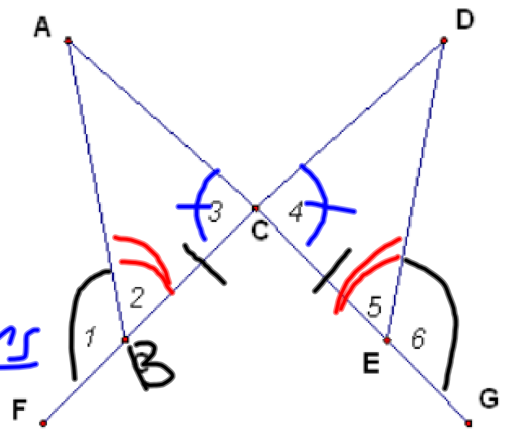


Statements	Reasons
1 O mdpt of $\overline{AY}$ O mdpt of $\overline{ZX}$	1. given
2. $\overline{AO} \cong \overline{OY}$	2. mdpt divides a segment into 2 $\cong$ segments
3. $\angle ZOA \cong \angle XOY$	3. vertical $\angle$s are $\cong$
4. $\overline{ZO} \cong \overline{OX}$	4. same as 2
5. $\triangle ZOA \cong \triangle XOY$	5. SAS (2, 3, 4)

#17

Given: $\angle 1 \cong \angle 6$

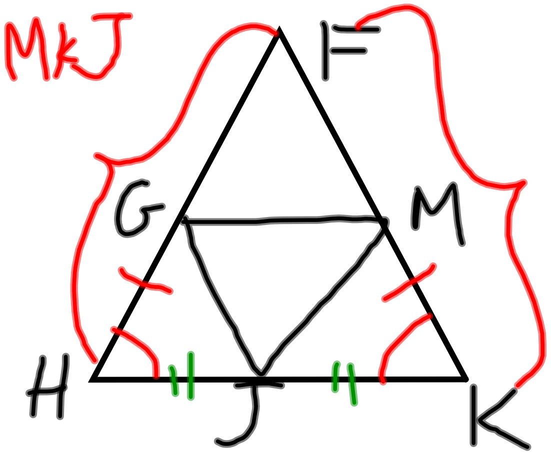
$\overline{BC} \cong \overline{EC}$



Prove: $\triangle ABC \cong \triangle DEC$

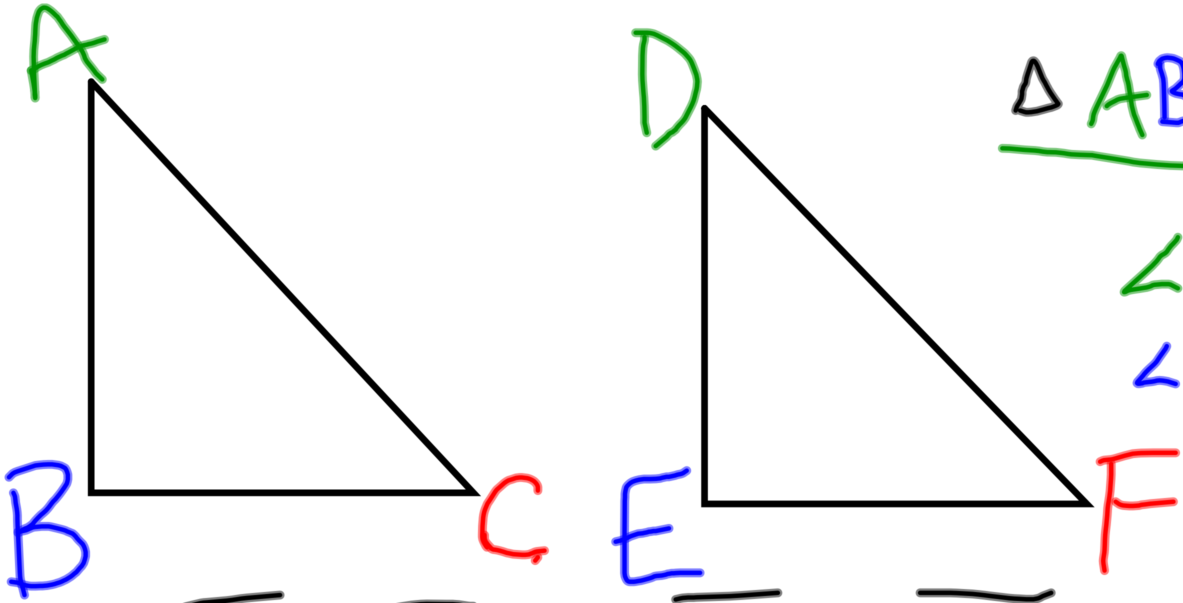
Statements	Reasons
1. $\angle 1 \cong \angle 6$ $\overline{BC} \cong \overline{EC}$	1. given
2. $\angle 3 \cong \angle 4$	2. Vertical ∡'s are ≅.
3. $\angle 1$ supp $\angle 2$ $\angle 5$ supp $\angle 5$	3. supp ∡s form a straight ∡
4. $\angle 2 \cong \angle 5$	4. supps to ≅ ∡s are ≅
5. $\triangle BCA \cong \triangle ECD$	5. ASA (2,1,4)

18. Prove: $\triangle GHJ \cong \triangle MKJ$



Statements	Reasons
1. $\overline{FH} \cong \overline{FK}$ $\angle H \cong \angle K$ G is mdpt of $\overline{FH}$ M is mdpt of $\overline{FK}$ J is mdpt of $\overline{HK}$	1. given
2. $\overline{FG} \cong \overline{KM}$	2. Division Prop.
3. $\overline{HJ} \cong \overline{JK}$	3. mdpt divides segment into 2 $\cong$ segments
4. $\triangle GHJ \cong \triangle MKJ$	4. SAS

Corresponding
Parts of
Congruent
Triangles are
Congruent



$\triangle ABC \cong \triangle DEF$

$\angle A \cong \angle D$

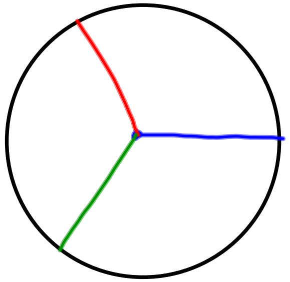
$\angle B \cong \angle E$

$\angle C \cong \angle F$

$\overline{CA} \cong \overline{FD}$

$\overline{AB} \cong \overline{DE}$

$\overline{BC} \cong \overline{EF}$



A **circle** is the set of all points in a plane that are a given distance from a given point in the plane. That point is called the **center** of the circle.

A **radius** is a line segment connecting the center of the circle to a point on the circle. The plural of radius is **radii**.

Theorem 19: All **radii** of a circle are congruent.

Proof:

By definition, all points on a circle are equidistant from the circle's center. Thus, any radius, which connects the center to a point on the circle has the same length.

$\therefore$ all radii of a circle are $\cong$.