Geometry Notes
Introduction: Congruent Triangles

Name: NOTES

Recall: There are 3 transformations that preserve size and shape – just simply change original location:

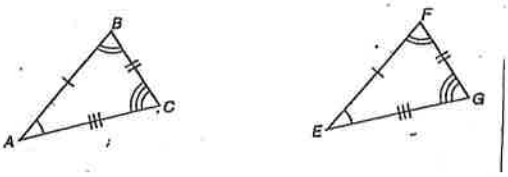
1. Reflection 2. Translation 3. Rotation

All 3 types are examples of Rigid transformations!

***Properties of Congruent Triangles:**

1. Corresponding Angle are Congruent 2. Corresponding Sides are Congruent

SO: If $\Delta ABC \cong \Delta EFG$, the vertices of the two triangles correspond in the same order as the letters naming the triangles.



$\angle A \cong \angle E$ $\quad \overline{AB} \cong \overline{EF}$
$\angle B \cong \angle F$ $\quad \overline{BC} \cong \overline{FG}$
$\angle C \cong \angle G$ $\quad \overline{AC} \cong \overline{EG}$

Ex1: Name the congruent angles and sides for each pair of congruent triangles.

A) $\Delta TUV \cong \Delta XYZ$

$\angle T \cong \angle X$ $\quad \overline{TU} \cong \overline{XY}$
$\angle U \cong \angle Y$ $\quad \overline{UV} \cong \overline{YZ}$
$\angle V \cong \angle Z$ $\quad \overline{TV} \cong \overline{XZ}$

B) $\Delta CDG \cong \Delta RSW$

$\angle C \cong \angle R$ $\quad \overline{CD} \cong \overline{RS}$
$\angle D \cong \angle S$ $\quad \overline{DG} \cong \overline{SW}$
$\angle G \cong \angle W$ $\quad \overline{CG} \cong \overline{RW}$

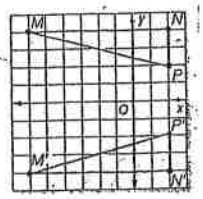
C) $\Delta BCF \cong \Delta DGH$

$\angle B \cong \angle D$ $\quad \overline{BC} \cong \overline{DG}$
$\angle C \cong \angle G$ $\quad \overline{CF} \cong \overline{GH}$
$\angle F \cong \angle H$ $\quad \overline{BF} \cong \overline{DH}$

D) $\Delta ADG \cong \Delta HKL$

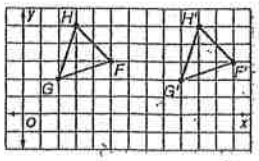
$\angle A \cong \angle H$ $\quad \overline{AD} \cong \overline{HK}$
$\angle D \cong \angle K$ $\quad \overline{DG} \cong \overline{KL}$
$\angle G \cong \angle L$ $\quad \overline{AG} \cong \overline{HL}$

Ex2: Identify the congruent triangles in each figure. Then, name the congruence transformation.

A) 

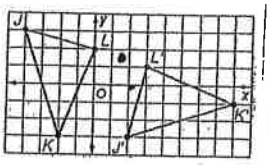
Reflection over x axis $(x, -y)$

$\triangle MNP \cong \triangle M'N'P'$

B) 

translation $(x+7, y)$

$\triangle FGH \cong \triangle F'G'H'$

C) 

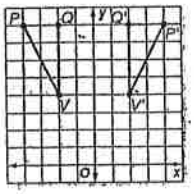
$(-4,3) \rightarrow (2,-3)$

$(0,2) \rightarrow (3,1)$

$(2,-3) \rightarrow (8,-1)$

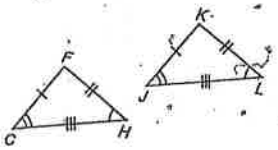
Rotate

$\triangle JKL \cong \triangle J'K'L'$

D) 

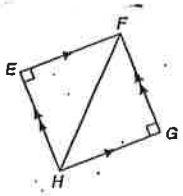
$\triangle VPQ \cong \triangle V'Q'P'$

Reflect over y-axis

E) 

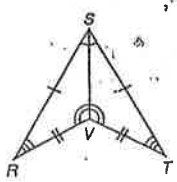
Translation

$\triangle CFH \cong \triangle JKL$

F) 

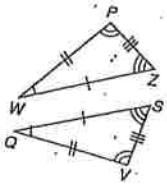
Reflect over $\overline{HF}$

$\triangle HEF \cong \triangle HGF$

G) 

Reflect over SV

$\triangle SRV \cong \triangle STV$

H) 

Reflection

$\triangle PZW \cong \triangle VSQ$

Do $\triangle ABC \cong \triangle DEF$