

Name: Key

Hour: _____

Notes on Congruent Triangles

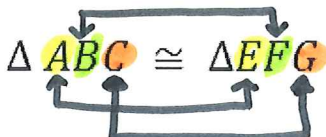
(Geometry Book Sections 4.3- 4.5)

Corresponding Parts of Congruent Triangles

Triangles that are the same size and the same shape are **congruent triangles**. Each triangle has 3 angles and 3 sides. If all 6 of the corresponding parts of 2 triangles are congruent, Then the triangles are congruent.



If $\triangle ABC$ is congruent to $\triangle EFG$, the vertices of the two triangles correspond in the same order as the letters naming the triangles.



The correspondence of the vertices can be used to name the corresponding congruent sides and angles of the 2 triangles. The corresponding sides and angles can be determined from congruence statements by following the order of the letters:

$$\begin{aligned} \angle A &\cong \angle E & \angle B &\cong \angle F & \angle C &\cong \angle G \\ \overline{AB} &\cong \overline{EF} & \overline{BC} &\cong \overline{FG} & \overline{AC} &\cong \overline{EG} \end{aligned}$$

1. If $\triangle RST \cong \triangle UWV$, complete each pair of congruent parts.

$$\begin{aligned} \angle R &\cong \angle U & \angle S &\cong \angle W & \angle T &\cong \angle V \\ \overline{RT} &\cong \overline{UV} & \overline{RS} &\cong \overline{UW} & \overline{ST} &\cong \overline{WV} \end{aligned}$$

2. Identify the congruent triangles in each diagram.

a. $AB \cong AD$ $\angle BAC \cong \angle DAC$
 $BC \cong DC$ $\angle B \cong \angle D$
 $AC \cong AC$ $\angle BCA \cong \angle ACD$
 $\triangle ABC \cong \triangle ADC$

b. $\triangle QSP \cong \triangle QSR$
 $\angle PQS \cong \angle RQS$ $PQ = QR$
 $\angle PSQ \cong \angle RSQ$ $PS = SR$
 $\angle P \cong \angle R$ $QS = QS$

c.

d. $\triangle RTV \cong \triangle SVU$
 $\angle V \cong \angle V$ $\angle R \cong \angle U$
 $\angle S \cong \angle T$
 $RT \cong SU$
 $VT \cong SV$ $RV \cong VU$

This takes too long!!!!!!!!!!!! Let's see if there are any shortcuts!

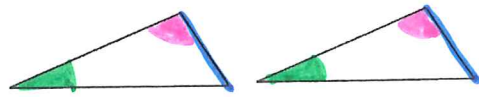
Triangle Congruence Shortcut - Side Side Side (SSS)



Does SSS work for Triangle Congruence?

Yes

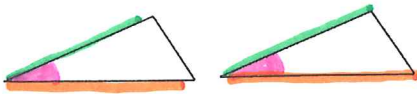
Triangle Congruence Shortcut-Side Angle Angle (SAA or AAS)



Does SAA work for Triangle Congruence?

Yes

Triangle Congruence Shortcut - Side Angle Side (SAS)



Does SAS work for Triangle Congruence?

Yes

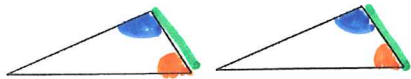
Triangle Congruence Shortcut-Angle Angle Angle (AAA)



Does AAA work for Triangle Congruence?

No

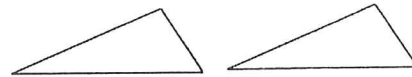
Triangle Congruence Shortcut-Angle Side Angle (ASA)



Does ASA work for Triangle Congruence?

Yes

Triangle Congruence Shortcut - Angle Side Side (ASS!?!?!?#%#!)



Does SSA or ASS work for Triangle Congruence?

No

No swearing in math!!

Triangle Congruence Shortcut - Hypotenuse Leg (HL)



Does HL work for Triangle Congruence?

Yes

What are the shortcuts that we showed work?

SSS, ~~SSA~~, SAA, SAS, ASA, HL