

Congruent Triangles

JV Practice 1/19/20

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Principles

Given $\triangle ABC$ and $\triangle DEF$.

- If $AB = DE$, $BC = EF$, $CA = FD$, then $\triangle ABC \cong \triangle DEF$. (**SSS**)
- If $AB = DE$, $BC = EF$, $\angle B = \angle E$, then $\triangle ABC \cong \triangle DEF$. (**SAS**)
- If $\angle A = \angle D$, $\angle B = \angle E$, $AB = DE$, then $\triangle ABC \cong \triangle DEF$. (**ASA**)
- If $\angle A = \angle D$, $\angle B = \angle E$, $BC = EF$, then $\triangle ABC \cong \triangle DEF$. (**AAS**)

Warm-up Problems

1. Given $\triangle ABC$. If $AB = AC$, show that $\angle B = \angle C$.
2. Given $\triangle ABC$ and $\triangle DEF$. If $\angle A = \angle D = 90^\circ$, $BC = EF$, $AB = DE$, show that $\triangle ABC \cong \triangle DEF$.
3. (ARML 1999) In the following figure, if $AB = 2$, $BC = 6$, $BF = 8$, $CE = 7$, and $CF = 7$, compute the ratio of the area of quadrilateral $ABDE$ to the area of $\triangle CDF$.

