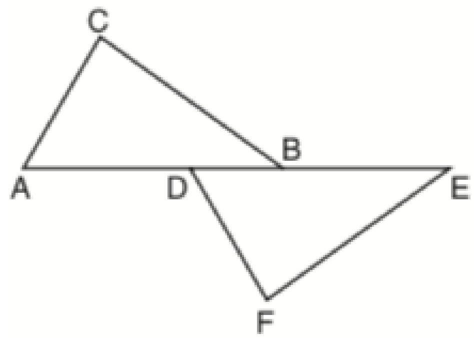
Unit 9: Congruence transformations Name:
26 February 2020

9.3 Classwork: Triangle congruence theorem applications

1. Kelly is completing a proof based on the figure below.



She was given that $\angle A \cong \angle EDF$, and has already proven $\overline{AB} \cong \overline{DE}$. Which pair of corresponding parts and triangle congruency method would *not* prove $\triangle ABC \cong \triangle DEF$?

(1) $\overline{AC} \cong \overline{DF}$ and SAS
(2) $\overline{BC} \cong \overline{EF}$ and SAS
(3) $\angle C \cong \angle F$ and AAS
(4) $\angle CBA \cong \angle FED$ and ASA

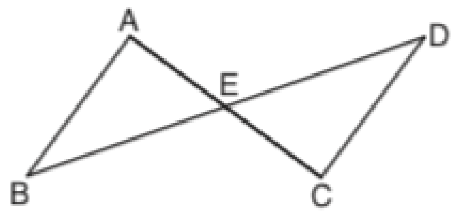
2. Sketch the triangles first.
In the two distinct acute triangles ABC and DEF, $\angle B \cong \angle E$. Triangles ABC and DEF are congruent when there is a sequence of rigid motions that maps

(1) $\angle A$ onto $\angle D$, and $\angle C$ onto $\angle F$
(2) $\overline{AC}$ onto $\overline{DF}$, and $\overline{BC}$ onto $\overline{EF}$
(3) $\angle C$ onto $\angle F$, and $\overline{BC}$ onto $\overline{EF}$
(4) point A onto point D, and $\overline{AB}$ onto $\overline{DE}$

3. Sketch the triangles first.
Triangles JOE and SAM are drawn such that $\angle E \cong \angle M$ and $\overline{EJ} \cong \overline{MS}$. Which mapping would *not* always lead to $\triangle JOE \cong \triangle SAM$?

(1) $\angle J$ maps onto $\angle S$
(2) $\angle O$ maps onto $\angle A$
(3) $\overline{EO}$ maps onto $\overline{MA}$
(4) $\overline{JO}$ maps onto $\overline{SA}$

In the diagram below, $\overline{AC}$ and $\overline{BD}$ intersect at E.



Which information is always sufficient to prove $\triangle ABE \cong \triangle CDE$?

(1) $\overline{AB} \parallel \overline{CD}$

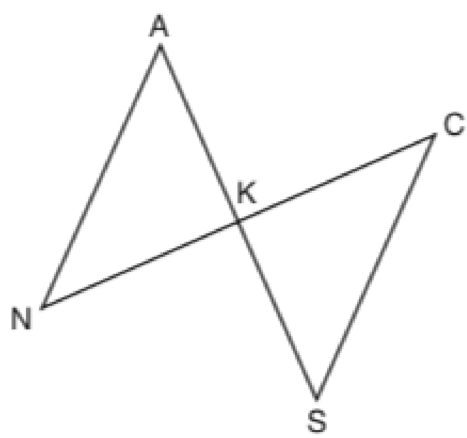
(2) $\overline{AB} \cong \overline{CD}$ and $\overline{BE} \cong \overline{DE}$

(3) E is the midpoint of $\overline{AC}$.

4. (4) $\overline{BD}$ and $\overline{AC}$ bisect each other.

5. Sketch the triangles first.

In the diagram below, $\overline{AKS}$, $\overline{NKC}$, $\overline{AN}$, and $\overline{SC}$ are drawn such that $\overline{AN} \cong \overline{SC}$.



Which additional statement is sufficient to prove $\triangle KAN \cong \triangle KSC$ by AAS?

(1) $\overline{AS}$ and $\overline{NC}$ bisect each other.

(2) K is the midpoint of $\overline{NC}$.

(3) $\overline{AS} \perp \overline{CN}$

(4) $\overline{AN} \parallel \overline{SC}$