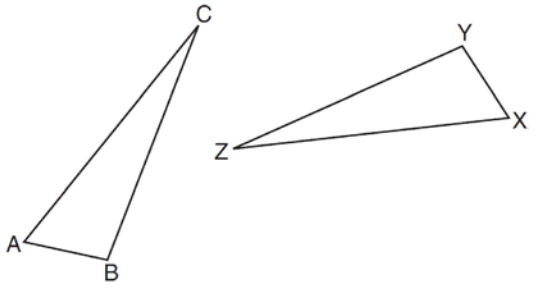
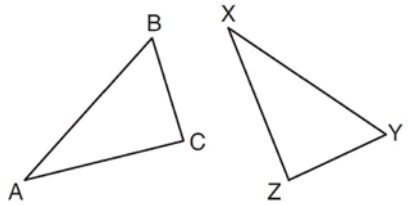
## G.SRT.B.5: Triangle Congruency

1 In the diagram below, $\triangle ABC \cong \triangle XYZ$.



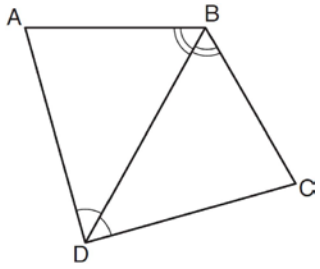

Which statement must be true?
1) $\angle C \cong \angle Y$
2) $\angle A \cong \angle X$
3) $\overline{AC} \cong \overline{YZ}$
4) $\overline{CB} \cong \overline{XZ}$

2 In the diagram below, $\triangle ABC \cong \triangle XYZ$.



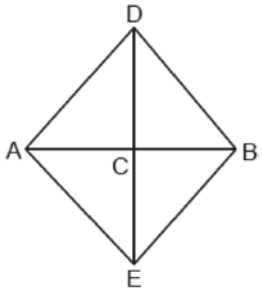

Which two statements identify corresponding congruent parts for these triangles?
1) $\overline{AB} \cong \overline{XY}$ and $\angle C \cong \angle Y$
2) $\overline{AB} \cong \overline{YZ}$ and $\angle C \cong \angle X$
3) $\overline{BC} \cong \overline{XY}$ and $\angle A \cong \angle Y$
4) $\overline{BC} \cong \overline{YZ}$ and $\angle A \cong \angle X$

3 The diagram below shows a pair of congruent triangles, with $\angle ADB \cong \angle CDB$ and $\angle ABD \cong \angle CBD$.



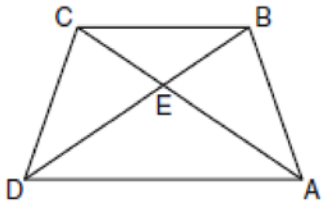

Which statement must be true?
1) $\angle ADB \cong \angle CBD$
2) $\angle ABC \cong \angle ADC$
3) $\overline{AB} \cong \overline{CD}$
4) $\overline{AD} \cong \overline{CD}$

4 In the diagram below of quadrilateral $ADBE$, $\overline{DE}$ is the perpendicular bisector of $\overline{AB}$.




Which statement is always true?
1) $\angle ADC \cong \angle BDC$
2) $\angle EAC \cong \angle DAC$
3) $\overline{AD} \cong \overline{BE}$
4) $\overline{AE} \cong \overline{AD}$

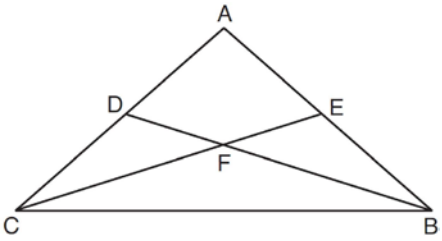
5 In the diagram of trapezoid $ABCD$ below, diagonals $\overline{AC}$ and $\overline{BD}$ intersect at $E$ and $\triangle ABC \cong \triangle DCB$.




Which statement is true based on the given information?

1) $\overline{AC} \cong \overline{BC}$
2) $\overline{CD} \cong \overline{AD}$
3) $\angle CDE \cong \angle BAD$
4) $\angle CDB \cong \angle BAC$

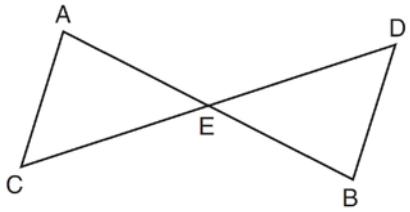
6 In $\triangle ABC$ shown below with $\overline{ADC}$, $\overline{AEB}$, $\overline{CFE}$, and $\overline{BFD}$, $\triangle ACE \cong \triangle ABD$.




Which statement must be true?

1) $\angle ACF \cong \angle BCF$
2) $\angle DAE \cong \angle DFE$
3) $\angle BCD \cong \angle ABD$
4) $\angle AEF \cong \angle ADF$

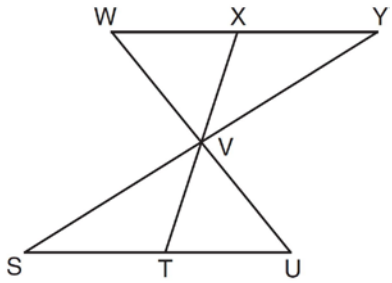
7 In the diagram below, $\triangle AEC \cong \triangle BED$.




Which statement is *not* always true?

1) $\overline{AC} \cong \overline{BD}$
2) $\overline{CE} \cong \overline{DE}$
3) $\angle EAC \cong \angle EBD$
4) $\angle ACE \cong \angle DBE$

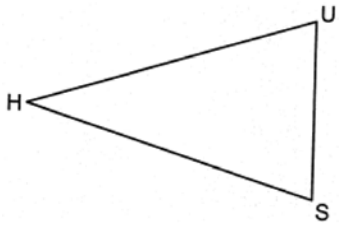
8 In the diagram below, $\triangle XYV \cong \triangle TSV$.




Which statement can *not* be proven?

1) $\angle XVY \cong \angle TVS$
2) $\angle VYX \cong \angle VUT$
3) $\overline{XY} \cong \overline{TS}$
4) $\overline{YV} \cong \overline{SV}$

9 Triangle $HUS$ is shown below.




If point $G$ is located on $\overline{US}$ and $\overline{HG}$ is drawn, which additional information is sufficient to prove $\triangle HUG \cong \triangle HSG$ by SAS?

1) $\overline{HG}$ bisects $\overline{US}$
2) $\overline{HG}$ is an altitude
3) $\overline{HG}$ bisects $\angle UHS$
4) $\overline{HG}$ is the perpendicular bisector of $\overline{US}$

10 If $\triangle JKL \cong \triangle MNO$, which statement is always true?

1) $\angle KLJ \cong \angle NMO$
2) $\angle KJL \cong \angle MON$
3) $\overline{JL} \cong \overline{MO}$
4) $\overline{JK} \cong \overline{ON}$

11 If $\triangle MNP \cong \triangle VWX$ and $\overline{PM}$ is the shortest side of $\triangle MNP$, what is the shortest side of $\triangle VWX$?

1) $\overline{XV}$
2) $\overline{WX}$
3) $\overline{VW}$
4) $\overline{NP}$

12 If $\triangle ABC \cong \triangle JKL \cong \triangle RST$, then $\overline{BC}$ must be congruent to

1) $\overline{JL}$
2) $\overline{JK}$
3) $\overline{ST}$
4) $\overline{RS}$

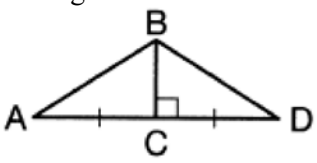
13 Which statement is *not* always true when $\triangle ABC \cong \triangle XYZ$.

1) $\overline{BC} \cong \overline{YZ}$
2) $\overline{CA} \cong \overline{XY}$
3) $\angle CAB \cong \angle ZXY$
4) $\angle BCA \cong \angle YZX$

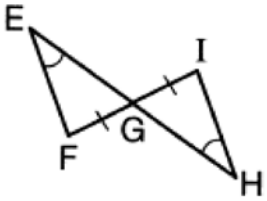
14 Given $\triangle ABC \cong \triangle DEF$, which statement is *not* always true?

1) $\overline{BC} \cong \overline{DF}$
2) $m\angle A = m\angle D$
3) area of $\triangle ABC$ = area of $\triangle DEF$
4) perimeter of $\triangle ABC$ = perimeter of $\triangle DEF$

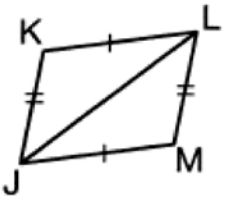
15 Given the information marked on the diagrams below, which pair of triangles can *not* always be proven congruent?



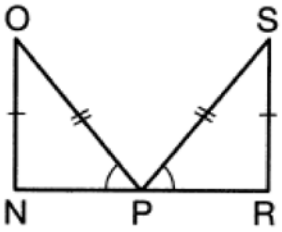

1) $\triangle ABC$ and $\triangle DBC$




2) $\triangle EFG$ and $\triangle HIG$

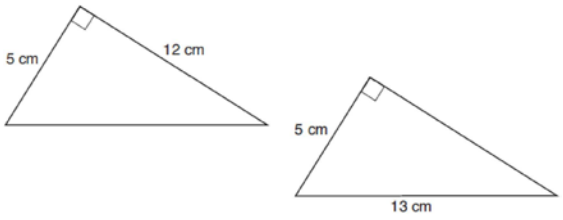



3) $\triangle KLJ$ and $\triangle MJL$




4) $\triangle NOP$ and $\triangle RSP$

16 Skye says that the two triangles below are congruent. Margaret says that the two triangles are similar.




Are Skye and Margaret both correct? Explain why.

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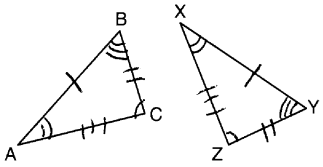
## Answer Section

1 ANS: 2 REF: 081102ge

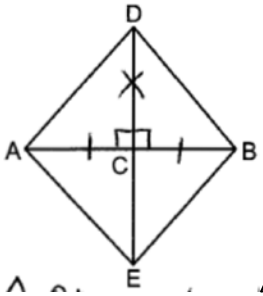
2 ANS: 4




REF: 081001ge

3 ANS: 4 REF: 011216ge

4 ANS: 1




$\triangle ADC \cong \triangle BDC$ by SAS

REF: 082316geo

5 ANS: 4 REF: 080905ge

6 ANS: 4 REF: 081501ge

7 ANS: 4 REF: 061410ge

8 ANS: 2

(1) is true because of vertical angles. (3) and (4) are true because CPCTC.

REF: 061302ge

9 ANS: 4 REF: 082410geo

10 ANS: 3 REF: 061102ge

11 ANS: 1 REF: 011301ge

12 ANS: 3 REF: 081309ge

13 ANS: 2 REF: 011624ge

14 ANS: 1 REF: 011703geo

15 ANS: 4

1) SAS; 2) AAS; 3) SSS

REF: 062216geo

16 ANS:

Yes. The triangles are congruent because of SSS $\left(5^2 + 12^2 = 13^2\right)$. All congruent triangles are similar.

REF: 061830geo