If the parts correspond, they're congruent
If the parts don't correspond, they're not congruent.

Name Schlansky
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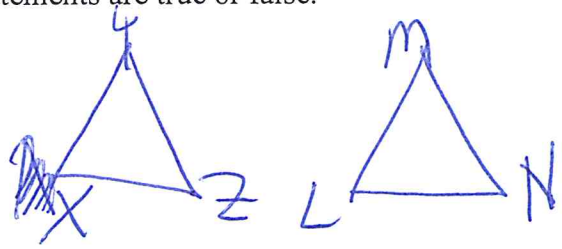
Date _____
Geometry

Corresponding Parts of Congruent Triangles

1. Triangle XYZ is congruent to triangle LMN. Determine whether the following statements are true or false.



a) $\overline{XY} \cong \overline{LM}$ Yes

b) $\overline{YZ} \cong \overline{LN}$ No

c) $\overline{ZX} \cong \overline{NL}$ Yes

d) $\overline{XZ} \cong \overline{MN}$ No

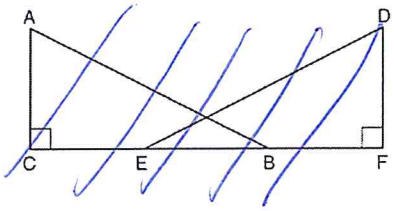
e) $\angle L \cong \angle Y$ No

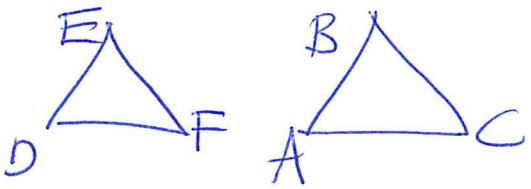
f) $\angle M \cong \angle Z$ No

g) $\angle Z \cong \angle N$ Yes

h) $\angle M \cong \angle Y$ Yes

2. Right triangle DEF is the image of right triangle *ABC* after a sequence of rigid motions. Determine whether the following statements are true or false.





a) $\overline{AC} \cong \overline{EF}$ No

b) $\overline{AB} \cong \overline{DE}$ Yes

c) $\overline{CA} \cong \overline{FD}$ Yes

d) $\overline{BC} \cong \overline{DF}$ No

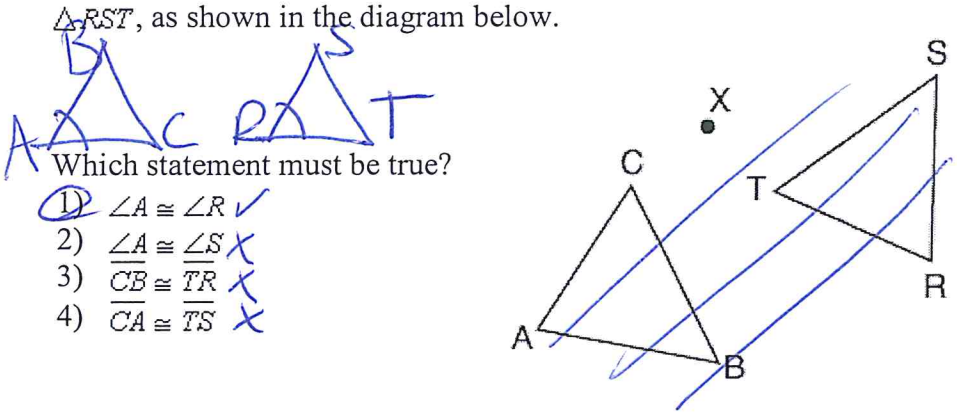
e) $\angle D \cong \angle B$ No

f) $\angle C \cong \angle F$ Yes

g) $\angle E \cong \angle B$ Yes

h) $\angle E \cong \angle C$ No

3. After a counterclockwise rotation about point X, scalene triangle ABC maps onto $\triangle RST$, as shown in the diagram below.



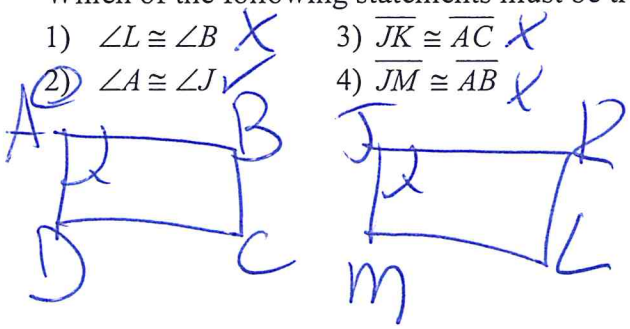
Which statement must be true?

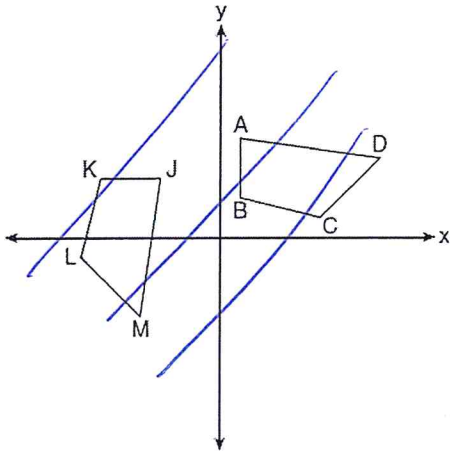
1) $\angle A \cong \angle R$ ✓
2) $\angle A \cong \angle S$ ✗
3) $\overline{CB} \cong \overline{TR}$ ✗
4) $\overline{CA} \cong \overline{TS}$ ✗

4. In the diagram below, a sequence of rigid motions maps $ABCD$ onto $JKLM$.

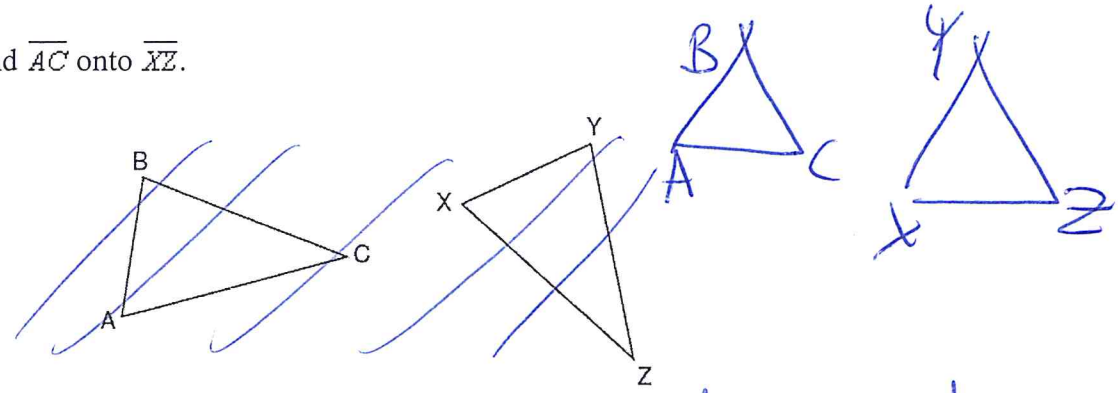
Which of the following statements must be true?

1) $\angle L \cong \angle B$ ✗
2) $\angle A \cong \angle J$ ✓
3) $\overline{JK} \cong \overline{AC}$ ✗
4) $\overline{JM} \cong \overline{AB}$ ✗





5. In the diagram below of $\triangle ABC$ and $\triangle XYZ$, a sequence of rigid motions maps $\angle A$ onto $\angle X$, $\angle C$ onto $\angle Z$, and $\overline{AC}$ onto $\overline{XZ}$.



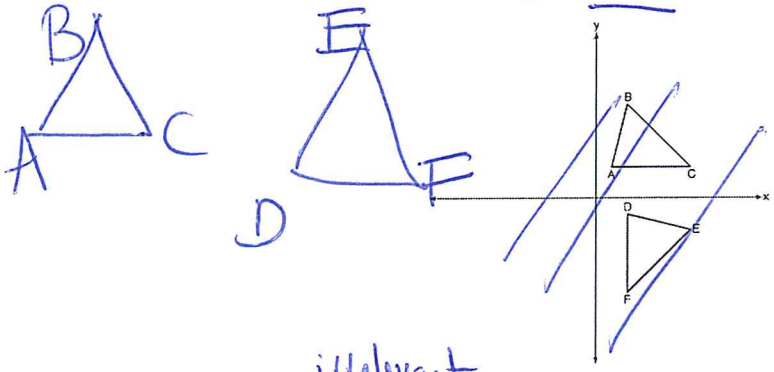
Determine and state whether $\overline{BC} \cong \overline{YZ}$. Explain why. Yes, the sides correspond.

Determine and state whether $\angle A \cong \angle Y$. Explain why. No, the angles don't correspond.

6. The image of $\triangle ABC$ after a rotation of 90° clockwise about the origin is $\triangle DEF$, as shown below.

Which statement is true?

1) $\overline{BC} \cong \overline{DE}$ X
2) $\overline{AB} \cong \overline{DF}$ X
3) $\angle C \cong \angle E$ X
4) $\angle A \cong \angle D$ ✓



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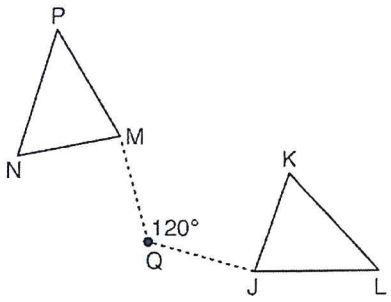
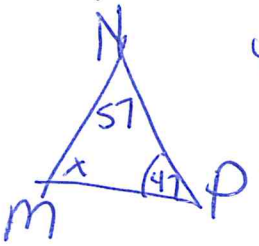
7. Triangle MNP is the image of triangle JKL after a 120° counterclockwise rotation about point Q. If the measure of angle L is 47° and the measure of angle N is 57°, determine the measure of angle M. Explain how you arrived at your answer.



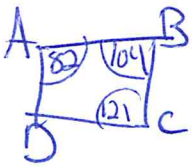


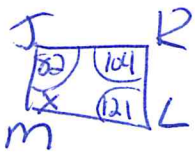
47+57+x=180
104+x=180
-104 -104
x=76°

Corresponding angles of congruent triangles are congruent.
The angles of a triangle add to 180.

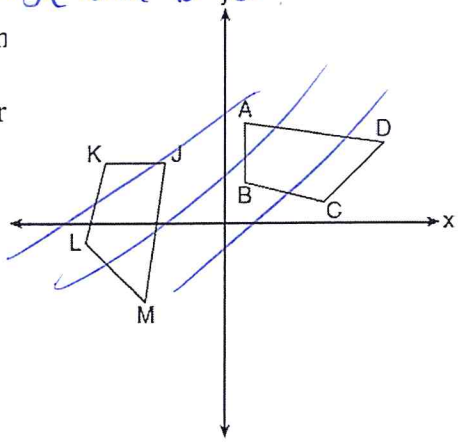
8. In the diagram below, a sequence of rigid motions m
ABCD onto *JKLM*.
If m∠A = 82°, m∠B = 104°, and m∠L = 121°, the measur
of ∠M is

1) 53°
2) 82°
3) 104°
4) 121°

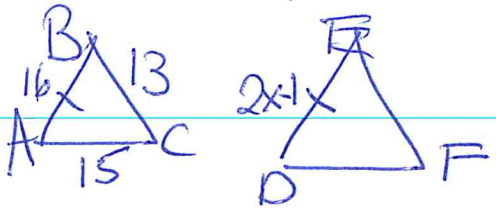


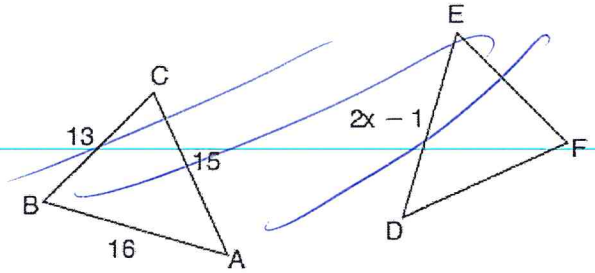


121+104+82+x=360
307+x=360
-307 -307
x=53



9. In the diagram below, $\triangle ABC$ with sides 13, 15, and 16, is mapped onto $\triangle DEF$ after a clockwise rotation of 90° about point P.
If $DE = 2x - 1$, what is the value of x?





2x-1=16
+1 +1
2x=17
2 2
x=8.5

P