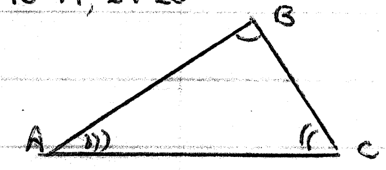
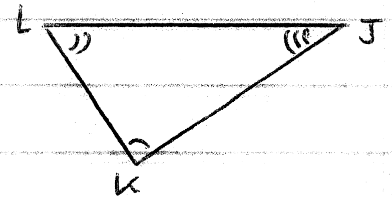
Geometry Ch 4-4, Exer. pg 234 #1-7, 9-10, 16-19, 24-26



State whether the given pairs are
- corresponding angles
- corresponding sides, or
- neither.

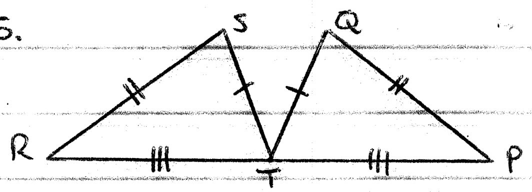


1. $\angle C$ and $\angle L$ — Corresp. Angles [note congruency marks]
2. $\overline{AC}$ and $\overline{JK}$ — Neither [again, use the $\cong$ marks]
3. $\overline{BC}$ and $\overline{KL}$ — Corresp. Sides
4. $\angle B$ and $\angle L$ — Neither

Decide whether the congruence statement is true.

$\triangle RST \cong \triangle TQP$

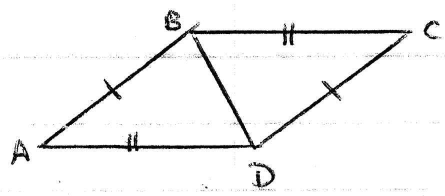
5.



The two $\triangle$'s are $\cong$ because they have 3 pair of corresponding and $\cong$ sides. However, the congruency statement is not correct. It could have been: $\triangle RST \cong \triangle PQT$

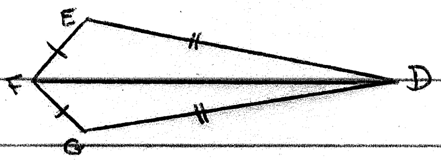
$\triangle ABD \cong \triangle CDB$

6.



Two pair of corresponding sides are given as $\cong$. The third pair of sides is congruent to itself by Reflexive Prop. The $\triangle$'s are $\cong$, and Congruency Stmt is correct.

$\triangle DEF \cong \triangle DGF$

7. 

Two pair of corresponding sides are given as $\cong$. The third pair of sides is congruent to itself by the Reflexive Property. The $\triangle$'s are $\cong$, and Congruency Statement is correct.

ALGEBRA Use the given coordinates to determine if $\triangle ABC \cong \triangle DEF$

9. $A(-2,-2)$, $B(4,-2)$, $C(4,6)$
$D(5,7)$, $E(5,1)$, $F(13,1)$

$\overline{AB} = \sqrt{(-2-(-2))^2 + (4-(-2))^2} = \sqrt{0+36} = \sqrt{36}$ Yes
$\overline{DE} = \sqrt{(7-1)^2 + (5-5)^2} = \sqrt{36+0} = \sqrt{36}$

$\overline{BC} = \sqrt{(4-4)^2 + (-2-6)^2} = \sqrt{0+64} = \sqrt{64}$ Yes
$\overline{EF} = \sqrt{(13-5)^2 + (1-1)^2} = \sqrt{64+0} = \sqrt{64}$

$\overline{CA} = \sqrt{(-2-4)^2 + (-2-6)^2} = \sqrt{36+64} = \sqrt{100}$ Yes
$\overline{FD} = \sqrt{(13-5)^2 + (1-7)^2} = \sqrt{64+36} = \sqrt{100}$

3 pair of congruent sides. Thus $\triangle ABC \cong \triangle DEF$

10. $A(-2,1)$, $B(3,-3)$, $C(7,5)$
$D(3,6)$, $E(8,2)$, $F(10,11)$

$\overline{AB} = \sqrt{(-2-3)^2 + (1-(-3))^2} = \sqrt{25+16} = \sqrt{41}$ Yes
$\overline{DE} = \sqrt{(3-8)^2 + (6-2)^2} = \sqrt{25+16} = \sqrt{41}$

$\overline{BC} = \sqrt{(3-7)^2 + (-3-5)^2} = \sqrt{16+64} = \sqrt{80}$ No
$\overline{EF} = \sqrt{(10-8)^2 + (11-2)^2} = \sqrt{4+81} = \sqrt{85}$

There is a pair of corresponding sides that are not congruent. $\triangle ABC \ncong \triangle DEF$. Note, that we do not have to check the third pair of sides since triangle congruency has already been ruled out.

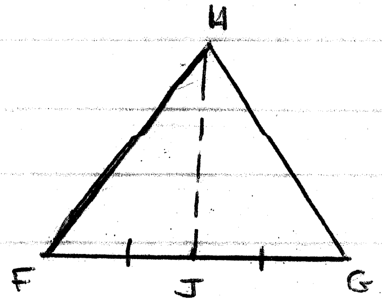
16. Let $\triangle FGH$ be equilateral with point J as the midpoint of $\overline{FG}$. Which statement is not true?

A. $\overline{FH} \cong \overline{GH}$ True

B. $\overline{FJ} \cong \overline{FH}$ FALSE

C. $\overline{FJ} \cong \overline{GJ}$ TRUE

D. $\triangle FHJ \cong \triangle GHJ$ True



Much easier with a drawing!

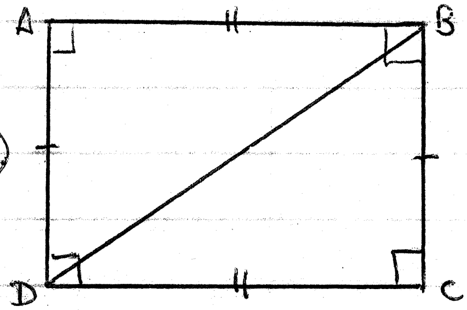
17. Let ABCD be a rectangle separated into to triangles by $\overline{BD}$. Which statement is not true?

A. $\overline{AD} \cong \overline{CB}$ True

B. $\overline{AB} \cong \overline{AD}$ False... unless ABCD is a square

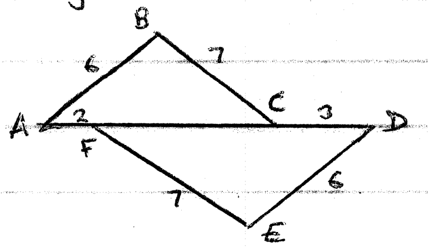
C. $\overline{AB} \cong \overline{CD}$ True

D. $\triangle DAB \cong \triangle BCD$ True



Determine whether $\triangle ABC \cong \triangle DEF$. If congruent write a congruence statement

18.



$\overline{AB} \cong \overline{DE}$ and $\overline{BC} \cong \overline{EF}$

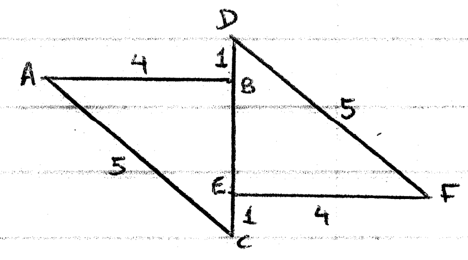
Is $\overline{AC} \cong \overline{DF}$??

or is $2 + \overline{FC} = 3 + \overline{FC}$?

No, not congruent, thus

$\triangle ABC \ncong \triangle DEF$

19.



$\overline{AB} \cong \overline{FE}$ and $\overline{AC} \cong \overline{FD}$

Is $\overline{DE} \cong \overline{CB}$??

or is $1 + \overline{BE} = \overline{BE} + 1$?

Yes. Since 3 pairs of corresp. and $\cong$ sides, $\triangle ABC \cong \triangle FED$

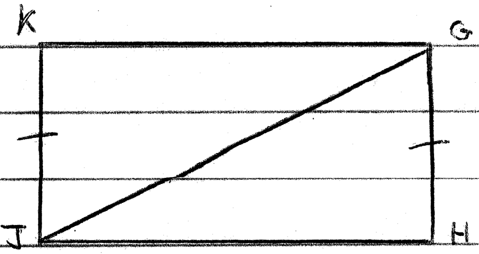
[Not $\triangle ABC \cong \triangle DEF$]

Write a proof.

24. Given: $\overline{GH} \cong \overline{JK}$

$\overline{HJ} \cong \overline{KG}$

Prove: $\triangle GHJ \cong \triangle JKG$



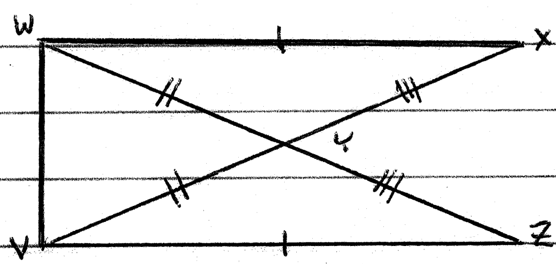
Statement	Reason	
$\overline{GH} \cong \overline{JK}$	Given	[SIDE]
$\overline{HJ} \cong \overline{KG}$	Given	[SIDE]
$\overline{JG} \cong \overline{GJ}$	Reflexive	[SIDE]
$\triangle GHJ \cong \triangle JKG$	S-S-S	

25. Given: $\overline{WX} \cong \overline{VZ}$

$\overline{WY} \cong \overline{VY}$

$\overline{YZ} \cong \overline{YX}$

Prove: $\triangle VWX \cong \triangle WVZ$



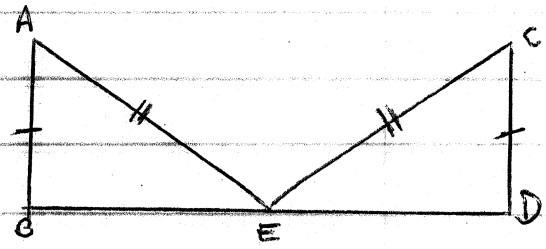
Statement	Reason	
$\overline{WX} \cong \overline{VZ}$	Given	[SIDE]
$\overline{WV} \cong \overline{VW}$	Reflexive	[SIDE]
$\overline{WY} \cong \overline{VY}$, $\overline{YZ} \cong \overline{YX}$	Given	
$\overline{WY} + \overline{YZ} = \overline{WZ}$	Segment Addition	
$\overline{VY} + \overline{YX} = \overline{WZ}$	Substitution	
$\overline{VY} + \overline{YX} = \overline{VX}$	Segment Addition	
$\overline{WX} \cong \overline{VX}$	Transitive Prop.	[SIDE]
$\triangle VWX \cong \triangle WVZ$	S-S-S	

26. Given: $\overline{AE} \cong \overline{CE}$

$\overline{AB} \cong \overline{CD}$

E is midpoint of $\overline{BD}$

Prove: $\triangle EAB \cong \triangle ECD$



Statement	Reason	
$\overline{AE} \cong \overline{CE}$	Given	[SIDE]
$\overline{AB} \cong \overline{CD}$	Given	[SIDE]
E is midpt of $\overline{BD}$	Given	
$\overline{BE} \cong \overline{DE}$	Defn of Midpoint	[SIDE]
$\triangle EAB \cong \triangle ECD$	S-S-S	