

# Proof Mini-Quiz Review of Mistakes

**Directions:** Find the mistakes in the given proofs. Use a RED pen and neat handwriting to explain the mistakes:

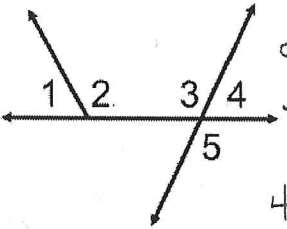
1. Given:  $\angle 1 \cong \angle 4$

3

a.

b. 3

Prove:  $\angle 2 \cong \angle 5$



1.  $\angle 1 \cong \angle 4$
2.  $\angle 2 \cong \angle 5$
3.  $\angle 3 \cong \angle 5$
4.  $\angle 2 \cong \angle 5$

1. given
2. con int  $\angle$ s
3. def of vertical  $\angle$ s  
*not a justification*
4. alt. con  $\angle$ s are  $\cong$   
*NO // lines*

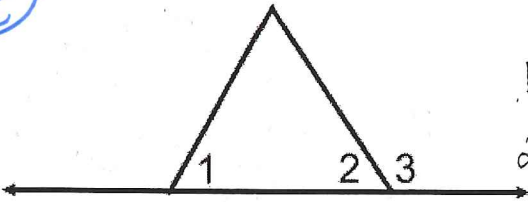
1.  $\angle 1 \cong \angle 4$
2.  $\angle 1 + \angle 2 = 180$   
 $\angle 4 + \angle 5 = 180$   
 $\angle 1 + \angle 2 = \angle 4 + \angle 5$
3.  $\angle 1 + \angle 2 = \angle 4 + \angle 5$
4.  $\angle 2 \cong \angle 5$

1. given
2. def of suppl. linear pairs are  
missing step  
Substitution
3. Substitution
4. Substitution  
Subtract

2. Given:  $\angle 1 \cong \angle 2$

Prove:  $\angle 1 + \angle 3 = 180$

3



*Doesn't logically flow* →

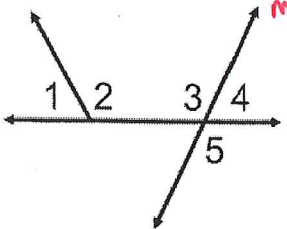
1.  $\angle 1 \cong \angle 2$
2.  $\angle 1 + \angle 2 = 180$
3.  $\angle 2 \cong \angle 3$   
 $\angle 2 + \angle 3 = 180$
4.  $\angle 1 + \angle 3 = 180$

1. given
2. con. int  $\angle$ s are suppl.  
*NO // lines*
3. substitution  
*linear pairs are suppl.*
4. Substitution

3. Given:  $\angle 1$  and  $\angle 3$  are supplementary

Prove:  $\angle 2 \cong \angle 5$

3



1.  $\angle 1$  and  $\angle 3$  are suppl.  
 $\angle 1 + \angle 3 = 180$  missing →
2.  $\angle 3 \cong \angle 5$
3.  $\angle 1 + \angle 5 = 180$
4.  $\angle 1 + \angle 2 = 180$
5.  $\angle 1 + \angle 5 = \angle 1 + \angle 2$
6.  $\angle 5 \cong \angle 2$

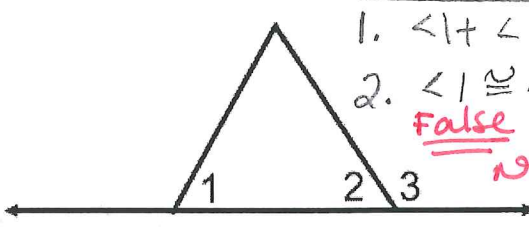
1. given ✓  
→ def of suppl.
2. Vertical  $\angle$ s are  $\cong$ .
3. Substitution
4. def of Linear Pairs are suppl.
5. Substitution
6. Substitution  
Subtraction

4. Given:  $\angle 1 + \angle 3 = 180$

a. ① whole proof!

b. 2

Prove:  $\angle 1 \cong \angle 2$



1.  $\angle 1 + \angle 3 = 180$
2.  $\angle 1 \cong \angle 2$

False  
no // lines!

1. given
2. alt. int  $\angle$  are  $\cong$

1.  $\angle 1 + \angle 3 = 180$
2.  $\angle 2 + \angle 3 = 180$

1. given  
2. linear pairs are suppl

4.  $\angle 1 \cong \angle 2$

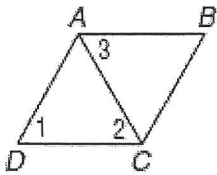
3. Substitution

4. ~~congruent~~  
Subtraction

need #5

5. Given:  $\angle 1 \cong \angle 2, \angle 1 \cong \angle 3$

2 Prove:  $\overline{AB} \parallel \overline{DC}$



1.  $\angle 1 \cong \angle 2, \angle 1 \cong \angle 3$
2.  $\angle 2 \cong \angle 3$
3.  $\overline{AB} \parallel \overline{DC}$

1. given
2. alt. int  $\angle$  are  $\cong$
3. substitution

You need to show alt int  $\angle$ s are  $\cong$  w/o using that as a justification b/c " $\cong$  alt int  $\angle$ s form parallel lines" must prove PARALLEL!!

6. X is the midpoint of  $\overline{WY}$ .  
 $WX + YZ = XZ$



1. X is the midpoint of  $\overline{WY}$

2.  $\overline{WX} \cong \overline{XY}$

3.  $XY + YZ = XZ$

4.  $\overline{WX} + \overline{YZ} = \overline{XZ}$

1. ~~X is the midpt of WY~~  
given

2. Definition of Midpoint

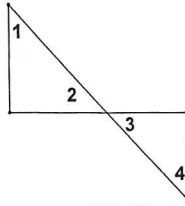
3. ~~substitution~~  
segment addition

4. Substitution

7. Given:  $\angle 1$  and  $\angle 2$  are complements

$\angle 3$  and  $\angle 4$  are complements

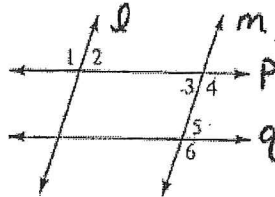
Prove:  $\angle 1 \cong \angle 4$



(4)

Statements	Reasons
1. $\angle 1$ and $\angle 2$ are complements $\angle 3$ and $\angle 4$ are complements	1. Given
2. $\angle 1 + \angle 2 = 90$ , $\angle 3 + \angle 4 = 90$	2. <del>angle</del> addition def of compl.
3. $\angle 2 \cong \angle 3$	3. <del>def of</del> vertical $\angle$ s are $\cong$
4. $\angle 1 + \angle 2 = \angle 3 + \angle 4$	4. substitution
5. $\angle 1 + \angle 2 = \angle 2 + \angle 4$	5. <del>Plug in?</del> substitution
6. $\angle 1 \cong \angle 4$	6. Proved? Subtract

8. Given:  $\angle 4$  and  $\angle 5$  are supplements.  
 $\angle 2 = \angle 3$   
Prove:  $\angle 2 = \angle 5$



(3)

Statements	Reasons
1. $\angle 4$ and $\angle 5$ are suppl. ✓ $\angle 2 = \angle 3$	1. Given ✓
2. <del><math>\angle 4 + \angle 5 = 180^\circ</math></del> $p \parallel q$	2. Supplementary consecutive interior angles form <u>parallel lines</u> This proves <u><math>\parallel</math> lines!</u>
3. <del><math>\angle 2 \cong \angle 3</math></del> $l \parallel m$	3. Congruent alternate interior angles form <u>parallel lines</u> This proves <u><math>\parallel</math> lines!</u>
4. $\angle 3 \cong \angle 5$	4. <del>Substitution</del> We proved <u><math>\parallel</math> lines</u> we can use alt int $\angle$ s are $\cong$
5. $\angle 2 = \angle 5$	5. Substitution



9.

Given:  $\overline{AB} \cong \overline{DE}$ ;  $\overline{BC} \cong \overline{EF}$   
 Prove:  $\overline{AC} \cong \overline{DF}$

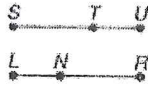


3

Statements	Reasons
1. $\overline{AB} \cong \overline{DE}$ , $\overline{BC} \cong \overline{EF}$	1. Given
2. $AC = AB + BC$ $DF = DE + EF$	2. <del>angle</del> addition these are segments
3. $DF = AB + BC$	3. Substitution
4. $\overline{AC} \cong \overline{DF}$	4. <del>subtraction</del> substitution

10.

Given:  $\overline{SU} \cong \overline{LR}$   
 $\overline{TU} \cong \overline{LN}$   
 Prove:  $\overline{ST} \cong \overline{NR}$



2

Statements	Reasons
1. $\overline{SU} \cong \overline{LR}$ , $\overline{TU} = \overline{LN}$	1. Given
2. $\overline{SU} = \overline{ST} + \overline{TU}$ $\overline{LR} = \overline{LN} + \overline{NR}$	2. Segment Addition (You should have 2 statements for this step)
3. $ST + TU = LN + NR$	3. Substitution
4. ? $ST + TU = TU + NR$	4. ? <del>def of midpt</del> substitution
5. $ST = NR$	5. Subtraction

No midpt given  
 So DON'T USE it!