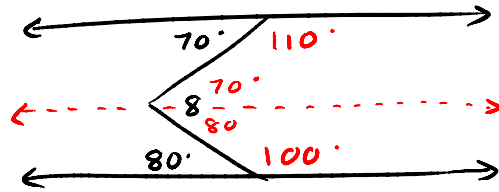


# Sec 5.3

Section 5.3  
pg 230: 10, 11, 15-16, 20, 28

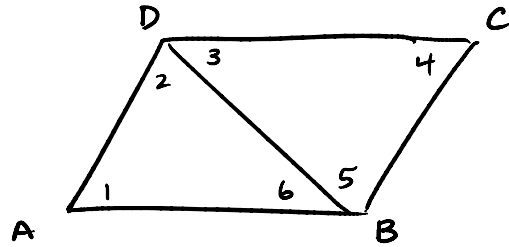
#10 (A crook problem)  
If  $f \parallel g$ , find  $m \angle 8$

$$m \angle 8 = 70 + 80 = 150^\circ$$



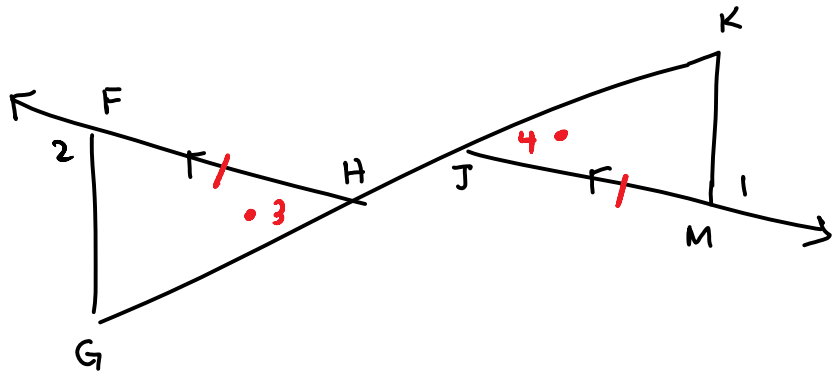
#11 Given:  $\overline{AD} \parallel \overline{BC}$   
Name all pairs of  $\sphericalangle$ 's that must be  $\cong$

$$\angle 2 \cong \angle 5$$



#15 Given:  $\overleftrightarrow{FH} \parallel \overleftrightarrow{JM}$   
 $\sphericalangle 1 \cong \sphericalangle 2$   
 $\overline{FH} \cong \overline{JM}$

Prove:  $\overline{GT} \cong \overline{HK}$

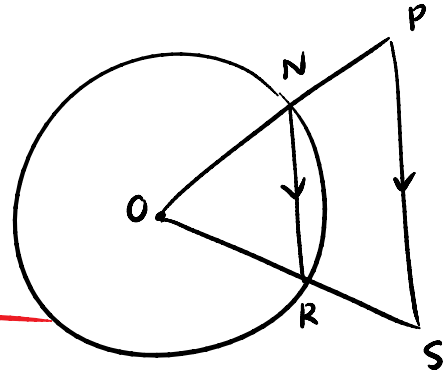


1.  $\overleftrightarrow{FH} \parallel \overleftrightarrow{JM}$
2.  $\sphericalangle 1 \cong \sphericalangle 2$
3.  $\overline{FH} \cong \overline{JM}$
4.  $\sphericalangle 3 \cong \sphericalangle 4$
5.  $\sphericalangle 2$  is supp to  $\sphericalangle HFG$
6.  $\sphericalangle 1$  is supp. to  $\sphericalangle KMJ$
7.  $\sphericalangle HFG \cong \sphericalangle KMT$
8.  $\triangle HFG \cong \triangle JMK$
9.  $\overline{GH} \cong \overline{KJ}$
10.  $\overline{GJ} \cong \overline{HK}$

1. Given
2. Given
3. Given
4. If  $\parallel$  lines  $\rightarrow$  alt. ext.  $\sphericalangle$ 's  $\cong$
5. If 2  $\sphericalangle$ 's form a str  $\sphericalangle \rightarrow$   $\sphericalangle$ 's supp.
6. "
7. If 2  $\sphericalangle$ 's are supp. to  $\cong$   $\sphericalangle$ 's  $\rightarrow$   $\sphericalangle$ 's  $\cong$
8. ASA
9. CPCTC
10. Addition

#16 Given:  $\odot O$   
 $\overline{NR} \parallel \overline{PS}$

Prove:  $\triangle OSP$  is isosceles

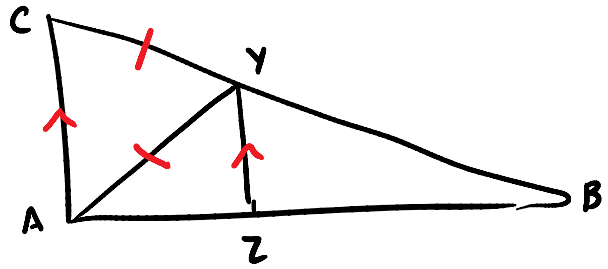


1.  $\odot O$
2.  $\overline{NR} \parallel \overline{PS}$
3.  $\overline{ON} \cong \overline{OR}$
4.  $\angle ONR \cong \angle ORN$
5.  $\angle ORN \cong \angle OSP$
6.  $\angle ONR \cong \angle OPS$
7.  $\triangle OSP$  is isos.

1. Given
2. Given
3. All radii are  $\cong$
4. If  $\triangle \rightarrow \triangle$
5. If  $\parallel$  lines  $\rightarrow$  corr  $\angle$ 's  $\cong$
6. If  $\parallel$  lines  $\rightarrow$  corr  $\angle$ 's  $\cong$
7. If a  $\triangle$  has at least 2  $\angle$ 's  $\cong$   
 $\rightarrow$  isos.

#20 Given:  $\overline{CY} \cong \overline{AY}$   
 $\overline{YZ} \parallel \overline{CA}$

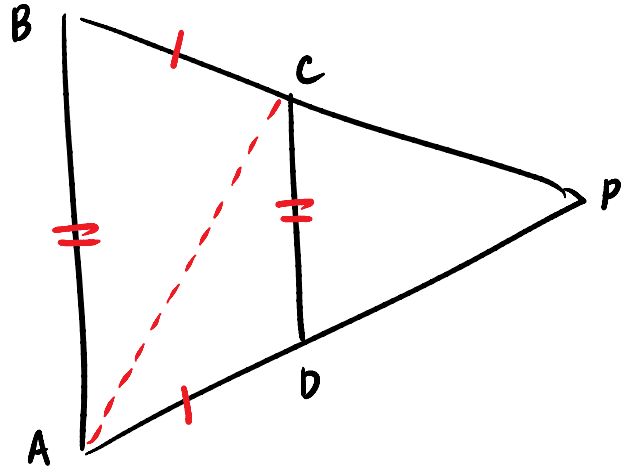
Prove:  $\overline{YZ}$  bisects  $\angle AYB$



1.  $\overline{CY} \cong \overline{AY}$
2.  $\overline{YZ} \parallel \overline{CA}$
3.  $\angle C \cong \angle YAC$
4.  $\angle C \cong \angle BYZ$
5.  $\angle YAC \cong \angle AYZ$
6.  $\angle YAC \cong \angle BYZ$
7.  $\angle AYZ \cong \angle BYZ$
8.  $\overline{YZ}$  bisects  $\angle AYB$

1. Given
2. Given
3. If  $\triangle \rightarrow \triangle$
4. If  $\parallel$  lines  $\rightarrow$  corr.  $\angle$ 's  $\cong$
5. If  $\parallel$  lines  $\rightarrow$  alt. int  $\angle$ 's  $\cong$
6. Transitive prop ( $\cong$  to same  $\angle$ )
7. Same as 6
8. If a ray divides an  $\angle$  into  
 $2 \cong \angle$ 's  $\rightarrow$  bisects the  $\angle$

#28 Given:  $\overline{BC} \cong \overline{AD}$   
 Prove:  $\overline{AB} \not\cong \overline{CD}$   
 (Hint: Draw  $\overline{AC}$ )



Either:  $\overline{AB} \not\cong \overline{CD}$  or  $\overline{AB} \cong \overline{CD}$

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

Proof: Draw  $\overline{AC}$  (2 pts determine a line)

$\overline{AC} \cong \overline{AC}$  (reflexive prop.)

$\triangle BCA \cong \triangle DCA$  (SSS)

$\angle ACB \cong \angle CAD$  (CPCTC)

\*  $\angle ACD \cong \angle CAB$  (CPCTC)

$\angle B \cong \angle CDA$  (CPCTC)

skip  
this  
proof

$\overline{CD} \parallel \overline{BA}$  (if alt int.  $\angle$ 's  $\cong \rightarrow \parallel$  lines)

$\angle DCB$  supp. to  $\angle B$  (if  $\parallel$  lines  $\rightarrow$  same side int.  $\angle$ 's supp)

$\angle DCB \cong \angle DAB$  (addition prop)

$\angle DAB$  supp. to  $\angle B$  (substitution)

$\overline{BC} \parallel \overline{AD}$  (if same side int  $\angle$ 's supp  $\rightarrow \parallel$  lines)

$\hookrightarrow$  but this contradicts the given that  $\overline{BC} \not\parallel \overline{AD}$   
 $\therefore$  our assumption is false  $\overline{AB} \not\cong \overline{CD}$