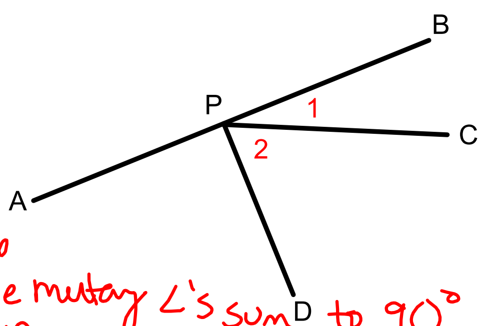
- Ch 4 Review Problems pp.176-180 #7-36, 48,51,52 due MONDAY 12/12
- Quiz Wednesday 12/14

- Ch 5 Review Problems pp. 206-209 #15-50
- Ch 6 Review Problems pp. 250-254 #9-19, 33-53

3.7 #44

Given: 1 and 2 are complementary;
PB-PC-PD. PC is between PB & PD
Prove: AB PD.

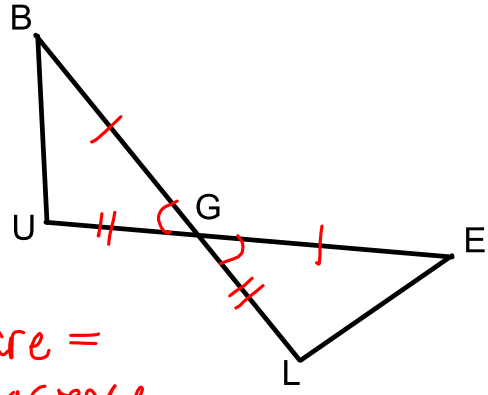


Statements	Reasons
1. 1 and 2 are complementary	Given
2. 1 + 2 = 90°	complementary ∠'s sum to 90°
3. PB-PC-PD	Given
4. BPD= 1 + 2	Betweenness of Rays Theorem
5. BPD=90°	Substitution (#2 & #4)
6. BPD is a right angle	right ∠'s measure 90°
7. AB⊥PD	perpendicular lines meet @ right ∠'s

4.4 #31

Given: BGU and EGL are vertical angles;
BG=GE and UG=GL

Prove: BU=LE



1. $\angle BGU$ & $\angle EGL$ are vertical $\angle$'s; $BG=GE$, $UG=GL$	Given
2. $\angle BGU = \angle EGL$	Vertical $\angle$'s are =
3. $\triangle BGU \cong \triangle EGL$	SAS congruence
4. $BU=LE$	Corresponding parts of congruent $\triangle$'s are equal

5.1 – Properties of Inequality

a, b, c – real #'s

Algebraic Axioms:

The "Three Possibilities" Property: either a>b, a=b, or a<b

The Transitive Property: If a>b and b>c, then a>c

The Addition Property: If a>b, then a+c>b+c

The Subtraction Property: If a>b, then a-c>b-c

The Multiplication Property: If a>b and c>0, then ac>bc

The Division Property: If a>b and c>0, then a/c>b/c

The Addition Theorem of Inequality: If a>b and c>d, then a+c>b+d

Proof:

Statements	Reasons
1. a>b	Given
2. a+c>b+c	Addition Property (Axiom/Postulate) of Inequality
3. c>d	Given
4. b+c>b+d	Addition Property of Inequality
5. a+c>b+d	Transitive Property of Inequality

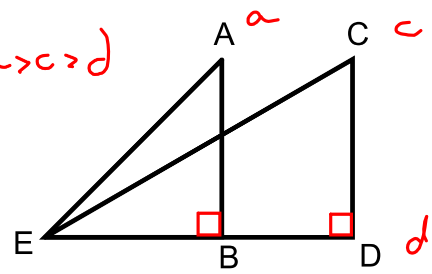
The "Whole Greater than Part" Theorem: If a>0, b>0, and a+b=c, then c>a and c>b

Proof:

Statements	Reasons
1. a>0 and b>0	Given
+b +b +a +a	
2. a+b>b and a+b>a	Addition Property of Inequality
3. a+b=c	Given
4. c>b and c>a	Substitution (#3 into #2)

47.

Given: AB=CD; EA-EC-ED iff $a<c<d$ or $a>c>d$
Prove: AED> CED

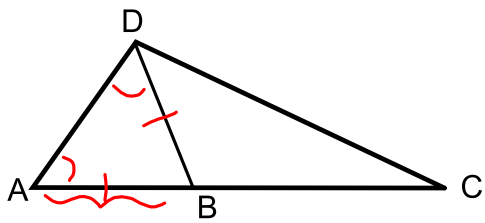


Proof:

Statements	**Reasons**
1. EA-EC-ED	Given
2. AED= AEC+ CED	Betweenness of Rays Theorem
3. AEC>0	Betweenness of Rays Def'n & Protractor Postulate
4. AED> CED	Whole Greater than Part

48.

Given: A-B-C; ADB= DAB
Prove: AC>DB



Proof:

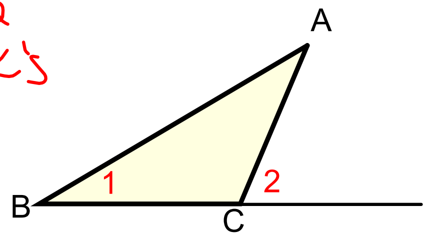
Statements:	**Reasons:**
1. A-B-C, ∠ADB = ∠DAB	Given
2. AB = DB	If 2 ∠s in a △ are =, the sides opposite them are =
3. AB + BC = AC	Betweenness of Points Theorem
4. DB+BC=AC	Substitution (#2 & 3)
5. AC > DB	Whole Greater than Part

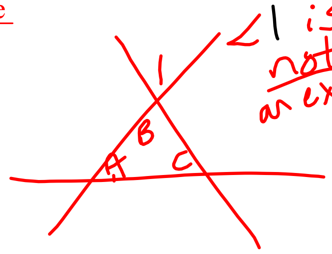
5.2 – The Exterior Angle Theorem

Def: An exterior angle of a triangle is an angle that forms a linear pair with an angle of the triangle.

In ΔABC, exterior 2 forms a linear pair with ACB.
The other two angles of the triangle, 1 (B) and A are called remote interior angles with respect to 2.

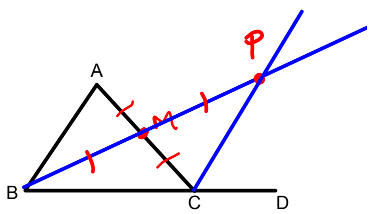
∠B & ∠A are the remote interior ∠'s w.r.t. ∠2





Theorem 12: The Exterior Angle Theorem
An Exterior angle of a triangle is greater than either remote interior angle.

Given: ACD is an exterior angle of ΔABC.
Prove: ACD> A and ACD> B



Proof:

Statements	Reasons
1. ACD is an exterior angle of ΔABC	Given
2. Let M be the midpoint of AC	Ruler postulate & uniqueness of midpoint
3. AM=MC	Def. of midpoint / midpoint divides segment into 2 equal parts
4. Draw line BM	2 points define a line
5. Choose P on line BM so that MB=MP	Ruler Postulate
6. Draw CP	2 pts define a line
7. AMB= CMP	vertical ∠'s are equal
8. ΔAMB ΔCMP	SAS congruence
9. A= 3	Corresponding parts of ≅ Δ's are =
10. ACD= 3+ 4	Betweenness of Rays Theorem
11. ACD> 3	Whole greater than part
12. ACD> A	Subst. (#9 & 11)