HW #4 - Due Fri, Dec 4
Ch 4 Review Problems pp.176-180 #7-36, 48,51,52

Khan Academy exercises: "Congruence"

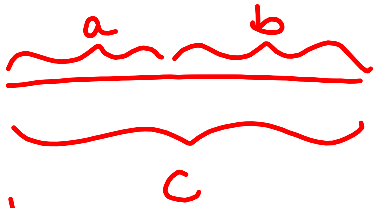
HW #5 - Due Fri, Dec 11
Ch 5 Review Problems pp. 206-209 #15-50

HW #6
Ch 6

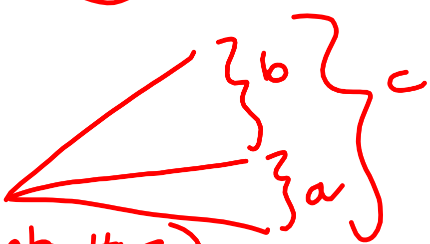
Test #2 - Mon 12/14 or Wed. 12/16?

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

Proof:

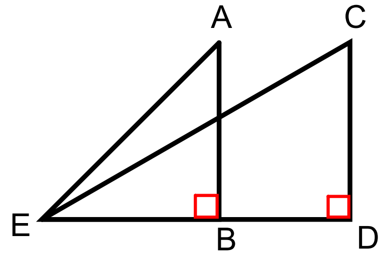


Statements	**Reasons**
1. a>0 and b>0	Given
2. a+b>b and a+b>a	Addition Property of Inequality
3. a+b=c	Given
4. c>b and c>a	Substitution (#3 into #2)



47.

Given: AB=CD; EA-EC-ED
Prove: ∠AED>∠CED

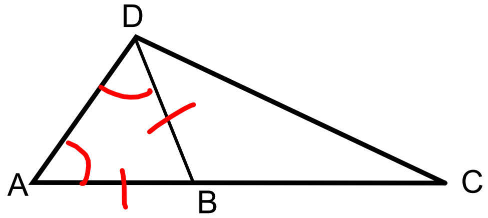


Proof:

Statements	**Reasons**
1. EA-EC-ED	Given
2. ∠AED=∠AEC+∠CED a<c<d	Betweenness of Rays Theorem betweeness of rays def'n
3. ∠AEC>0	Protractor Postulate
4. ∠AED>∠CED	Whole is Greater than Part

48.

Given: A-B-C; ∠ADB=∠DAB
Prove: AC>DB

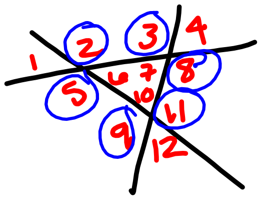


Proof:

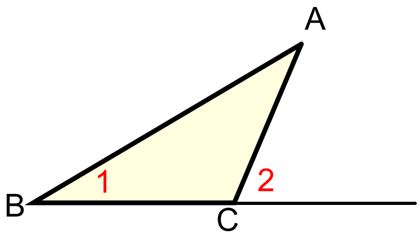
Statements:	**Reasons:**
1. A-B-C & ∠ADB=∠DAB	Given
2. AB=DB	If 2 ∠'s in a △ are =, then the sides opposite them are =
3. AC>AB [AB>0	Whole Greater than Part Protractor Postulate]
4. AC>DB	Substitution (#2 into #3)

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.

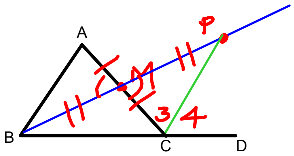


In ΔABC, exterior ∠2 forms a linear pair with ∠ACB.
The other two angles of the triangle, ∠1 (∠B) and ∠A are called remote interior angles with respect to ∠2.



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

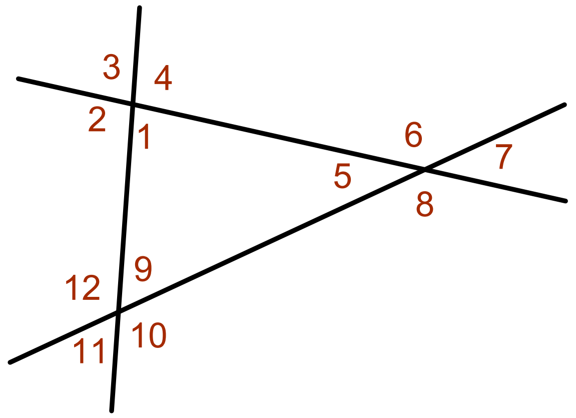
Given: ∠ACD is an exterior angle of ΔABC.
Prove: ∠ACD>∠A and ∠ACD>∠B



Proof:

Statements	**Reasons**
1. ∠ACD is an exterior angle of ΔABC	Given
2. Let M be the midpoint of AC	~~Compass construction~~ uniqueness of midpoint
3. AM=MC	midpoint divides the segment into 2 equal parts
4. Draw line BM	2 points determine a line
5. Choose P on line BM so that MB=MP	Ruler Postulate
6. Draw CP	2 points determine a line
7. ∠AMB=∠CMP	Vertical angles are equal
8. ΔAMB≅ΔCMP	SAS congruency
9. ∠A=∠3	Corresponding parts of congruent △'s are equal
10. ∠ACD=∠3+∠4	Betweenness of Rays Theorem
11. ∠ACD>∠3	Whole is Greater than Part
12. ∠ACD>∠A	Substitution (#9 & 12)

Case for ∠B is similar.



Find each of the following sums.

26. $\angle1+\angle2+\angle3+\angle4$

360°

27. $\angle1+\angle2+\angle3+\angle4+\angle5+\angle6+\angle7+$
$\angle8+\angle9+\angle10+\angle11+\angle12$

3(360°) = 1080°

28. $\angle1+\angle5+\angle9$

180° ($\triangle$ sum Thm)

29. $\angle3+\angle7+\angle11$

180° vertical ∠'s are = (& subst. w/ #28)

30. $\angle2+\angle4+\angle6+\angle8+\angle10+\angle12$

720° = 1080° − 180° − 180°
(#27 − (#28 & 29))

31. What does the result in exercise 30 indicate about the sum of the exterior angles of a triangle?

always = 720°