- Ch 5 Review Problems pp. 206-209 #15-50 due FRIDAY 01/06
- TEST #2 - Wednesday 01/11
  - > mostly Ch 4-5
  - > some review of Ch 1-3
  - > Vocab from Ch 6 through Theorem 21

- Ch 6 Review Problems pp. 250-254 #9-19, 33-53

  due Fri 01/13

Theorem 17: Equal corresponding angles mean that lines are parallel.
Corollary 1: Equal alternate interior angles mean that lines are parallel.
Corollary 2: Supplementary interior angles on the same side of a transversal mean that lines are parallel.
Corollary 3: In a plane, two lines perpendicular to a third line are parallel.

The Parallel Postulate – Through a point not on a line, there is exactly one line parallel to the given line.

Theorem 18: In a plane, two lines parallel to a third line are parallel to each other.

Theorem 19: Parallel lines form equal corresponding angles.

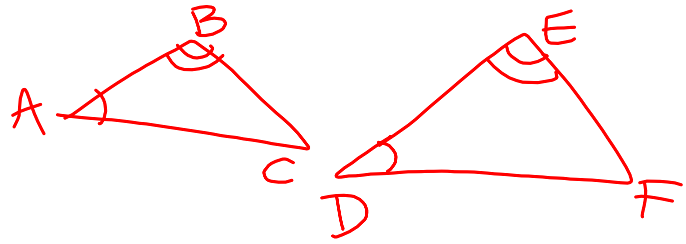
Corollary 1: Parallel lines form equal alternate interior angles.

Corollary 2: Parallel lines form supplementary interior angles on the same side of a transversal.

Corollary 3: In a plane, a line perpendicular to one of two parallel lines is also perpendicular to the other.

Theorem 20: The Angle Sum Theorem – The sum of the angles of a triangle is 180°.

Corollary 1: If two angles of one triangle are equal to two angles of another triangle, the third angles are equal.



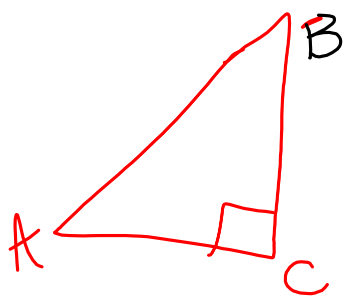
Given: $\angle A = \angle D$
$\angle B = \angle E$

To Prove: $\angle C = \angle F$

Proof

1. $\angle A = \angle D$, $\angle B = \angle E$ — Given
2. $\angle A + \angle B + \angle C = 180°$, $\angle D + \angle E + \angle F = 180°$ — Triangle sum Theorem
3. $\angle C = 180° - \angle A - \angle B$, $\angle F = 180° - \angle D - \angle E$ — subtraction property of equality
4. $\angle C = 180° - \angle D - \angle E$ — Substitution (#1 into #3)
5. $\angle C = \angle F$ — Substitution (#4 into #3)

Corollary 2: The acute angles of a right triangle are complementary.



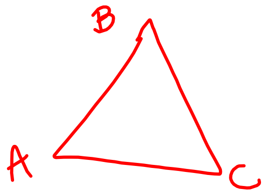
Given: $\triangle ABC$ is a right $\triangle$ with right angle C

To Prove: $\angle A$ and $\angle B$ are complementary

Proof:

1. $\triangle ABC$ is a right $\triangle$, $\angle C$ is a right $\angle$ — Given
2. $\angle A + \angle B + \angle C = 180°$ — Triangle Sum Theorem
3. $\angle C = 90°$ — Right $\angle$'s measure 90°
4. $\angle A + \angle B + 90° = 180°$ — Substitution
5. $\angle A + \angle B = 90°$ — Subtraction
6. $\angle A$ and $\angle B$ are complimentary — complementary $\angle$'s sum to 90°

Corollary 3: Each angle of an equilateral triangle is 60°.



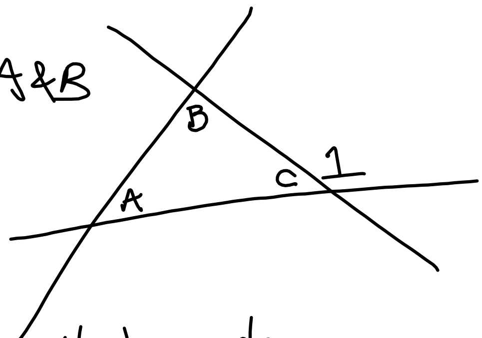
Given: $\triangle ABC$ is equilateral

To Prove: $\angle A = \angle B = \angle C = 60°$

Proof:

Statements	Reasons
1. $\triangle ABC$ is equilateral	Given
2. $\triangle ABC$ is equiangular $\angle A = \angle B = \angle C$	Equilateral $\triangle$'s are equiangular
3. $\angle A + \angle B + \angle C = 180°$	Triangle Sum Theorem
4. $\angle A + \angle A + \angle A = 180°$ $3\angle A = 180°$	Substitution (& simplification)
5. $\angle A = 60°$	Division Property of Equality
6. $\angle B = \angle C = 60°$	Substitution

Theorem 21: An exterior angle of a triangle is equal to the sum of the remote interior angles.



Given: $\angle 1$ is an exterior angle of $\triangle ABC$ w/ remote interior $\angle$'s A & B

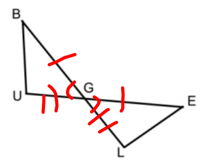
To Prove: $\angle 1 = \angle A + \angle B$

PROOF:

Statements	Reasons
1. $\angle 1$ is an exterior angle of $\triangle ABC$	Given
2. $\angle 1$ and $\angle C$ form a linear pair	Def. of exterior angle
3. $\angle 1$ and $\angle C$ are supplementary	$\angle$'s in a linear pair are suppl.
4. $\angle 1 + \angle C = 180°$	Suppl. $\angle$'s sum to 180°.
5. $\angle A + \angle B + \angle C = 180°$	Triangle Sum Theorem
6. $\angle 1 + \angle C = \angle A + \angle B + \angle C$	Substitution
7. $\angle 1 = \angle A + \angle B$	Subtraction

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

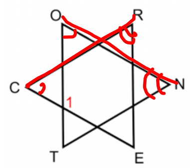
***Prove*: BU=LE**



Statements:	Reasons:
27. BG=GE, UG=GL	Given
28. ∠BGU & EGL are vertical ∠'s	Given
29. ∠BGU=∠EGL	vertical ∠'s are equal
30. △BGU ≅ △EGL	SAS Congruence
31. BU=EL	corresponding parts of congruent △'s are equal

Given: ∠C=∠O;
∠R and ∠N are supplements of ∠1;
CR=ON.

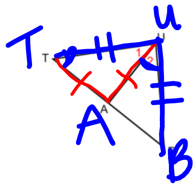
***Prove*: ΔCRE≅ΔONT.**



Statements:	Reasons:
32. ∠C=∠O; CR=ON	given
33. ∠R & ∠N are supplements of ∠1	Given
34. ∠R+∠1= 180°	Supplementary angles sum to 180°
35. ∠N+ ∠1 =180°	Supplementary angles sum to 180°
36. ∠R+∠1=∠N+∠1	Substitution
37. ∠R=∠N	subtraction by ∠1
38. ΔCRE≅ΔONT	ASA congruence

Given: ∠T and ∠2 are complements of ∠1;
TA=AU;
TU=UB.

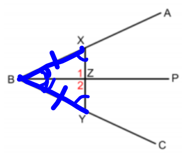
***Prove*:** **AU=AB.**



Statements:	Reasons:
39. TA=AU; TU=UB	Given
40. ∠T & ∠2 are complements of ∠1	Given
41. ∠T+ ∠1 =90°	Complementary angles sum to 90°
42. ∠2+∠1= 90°	Complementary angles sum to 90°
43. ∠T+∠1=∠2+∠1	Substitution
44. ∠T = ∠2	Subtraction
45. ΔATU≅ΔAUB	SAS
46. AU = AB	Corresponding parts of congruent triangles are equal.

Given: BP bisects ∠ABC;
BX=BY;
∠1 and ∠2 form a linear pair.

***Prove*:** **XY ⊥ BP.**

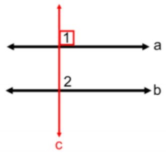


Statements:	Reasons:
47. BX=BY	Given
48. ∠BXZ = ∠BYZ	If two sides of a triangle are equal, the angles opposite them are equal.
49. BP bisects ∠ABC	Given
50. ∠CBP=∠ABP	angle bisector divides an angle into 2 equal parts
51. ΔBXZ ≅ ΔBYZ	ASA congruence
52. ∠1= ∠2	Corresponding parts of congruent Δ's are equal
53. ∠1 and ∠2 form a linear pair	Given
54. XY ⊥ BP	If ∠'s in a linear pair are equal, then their sides are perpendicular

Theorem: In a plane, a line perpendicular to one of two parallel lines is also perpendicular to the other.

Given: c⊥a and a||b

Prove: c⊥b

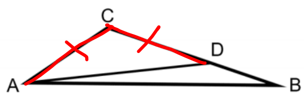


Statements	Reasons
c⊥a	Given
31. ∠1 is a right angle	perpendicular lines form right ∠'s
32. ∠1=90°	Right angles measure 90°
a||b	Given
33. ∠1=∠2	Parallel lines form equal corresponding angles
34. ∠2=90°	substitution
35. ∠2 is a right angle	right ∠'s are equal
36. c⊥b	perpendicular lines meet @ right ∠'s

Theorem: If two sides of a triangle are unequal, the angles opposite them are unequal in the same order.

Given: ΔABC with BC>AC

42. *Prove*: ∠BAC>∠B



Statements	Reasons
ΔABC with BC>AC	Given
Choose D on CB so that CD=CA	Ruler Postulate
43. Draw AD	2 points define a line
44. ∠CAD=∠CDA	If two sides of a triangle are equal, the angles opposite them are equal.
45. ∠CAB=∠CAD+∠DAB	Betweenness of Rays Theorem
46. ∠CAB>∠ CAD	Whole greater than part
∠CAB>∠CDA	Substitution
47. ∠CDA>∠B	ext. ∠ is greater than either remote int. ∠
48. ∠CAB>∠B	Transitive