Geometry
Quiz 2.7-2.8 today

Review Ch. 2

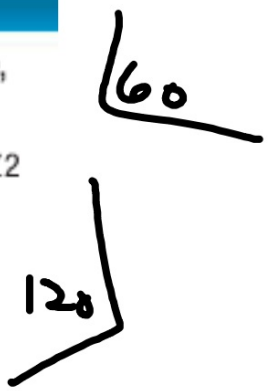
Test is Tues.
(2 proofs with missing parts)
(2 proofs from scratch)

2-1 Inductive Reasoning and Conjecture

Determine whether each conjecture is *true* or *false*. If false, give a counterexample.

11. If $\angle 1$ and $\angle 2$ are supplementary angles, then $\angle 1$ and $\angle 2$ form a linear pair.

12. If $W(-3, 2)$, $X(-3, 7)$, $Y(6, 7)$, $Z(6, 2)$, then quadrilateral $WXYZ$ is a rectangle.



2-3 Conditional Statements

Determine the truth value of each conditional statement. If *true*, explain your reasoning. If *false*, give a counterexample.

18. If you square an integer, then the result is a positive integer. $(\ )^2 \rightarrow$ pos

19. If a hexagon has eight sides, then all of its angles will be obtuse. T

20. Write the converse, inverse, and contrapositive of the following true conditional. Then, determine whether each related conditional is *true* or *false*. If a statement is false, find a counterexample.

If two angles are congruent, then they have the same degree measure.

c → d

inv. not c → dont same d T

conv same deg → cong T

cp if not same deg → not ≅ T

A → B B → C C → D

Example 4

Use the Law of Syllogism to determine whether a valid conclusion can be reached from the following statements.

(1) If the measure of an angle is greater than 90, then it is an obtuse angle. > 90 ⇒ obt

(2) If an angle is an obtuse angle, then it is not a right angle. obt → not rt

Valid

2-5 Postulates and Paragraph Proofs

Determine whether each statement is *always*, *sometimes*, or *never* true. Explain.

24. Two planes intersect at a point.

25. Three points are contained in more than one plane.

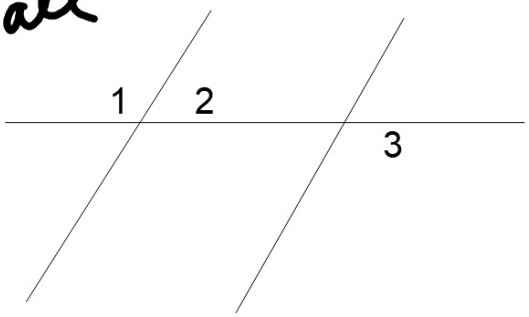
26. If line m lies in plane $\mathcal{X}$ and line m contains a point Q, then point Q lies in plane $\mathcal{X}$.

27. If two angles are complementary, then they form a right angle.

PT p. 165 all

Given: ∠1 and ∠2 form a linear pair, ∠2 and ∠3 are supplementary

Prove ∠1 ≅ ∠3



1. $\angle 1$ & $\angle 2$ LP $\angle 2$ & $\angle 3$ Supp	!given
2. $m\angle 1 + m\angle 2 = 180$	2. def LP
3. $m\angle 2 + m\angle 3 = 180$	3. def Supp
4. $m\angle 1 + m\angle 2 = m\angle 2 + m\angle 3$	4 Subs
5.	5. Subtr
6. $m\angle 1 = m\angle 3$	6. Subs

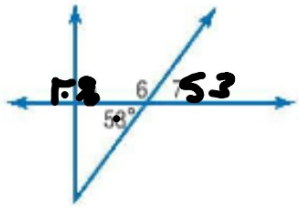
2-8 Proving Angle Relationships

Find the measure of each angle.

40. $\angle 5$ = 90°

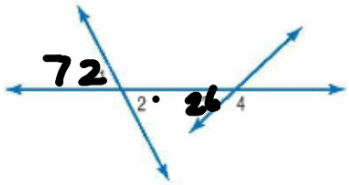
41. $\angle 6$ = 127°

42. $\angle 7$ = 53°



Example 8

Find the measure of each numbered angle if $m\angle 1 = 72$ and $m\angle 3 = 26$.



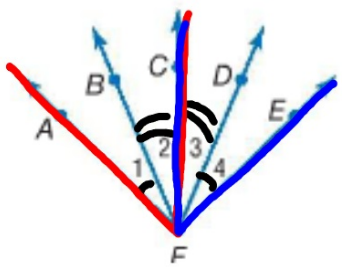
$\angle 2 = 72$

$\angle 4 = 154$

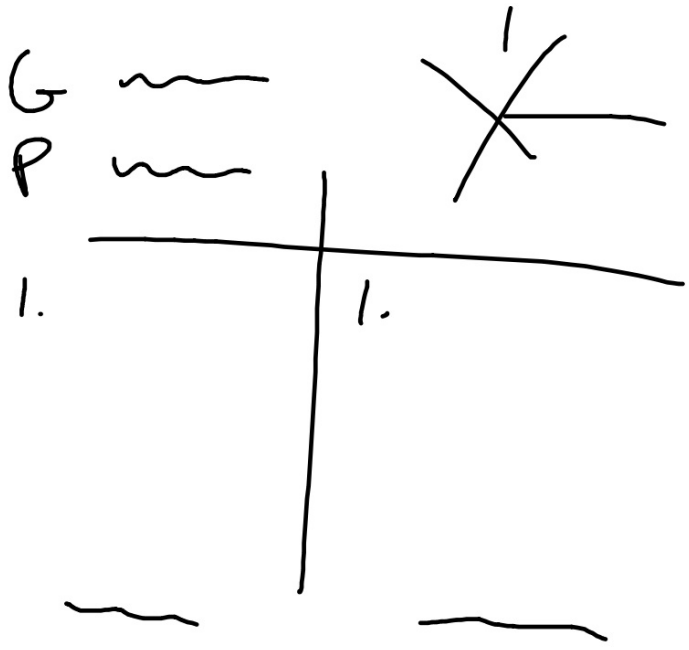
43. **PROOF** Write a two-column proof.

Given: $\angle 1 \cong \angle 4, \angle 2 \cong \angle 3$

Prove: $\angle AFC \cong \angle EFC$



1. $\angle 1 \cong \angle 4$, $\angle 2 \cong \angle 3$	1. given
2. $\angle 1 + \angle 2 = \angle AFC$, $\angle 3 + \angle 4 = \angle EFC$	2. $\angle$ add
3. $\angle 1 + \angle 2 = \angle 3 + \angle 4$	3. add prop
4. $\angle AFC = \angle EFC$	4. Subs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