Geometry

Quiz 2.7-2.8 today

Review Ch. 2

Test is Tues. (at least one proof)

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.

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

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.

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.

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

2-5 Postulates and Paragraph Proofs

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

24. Two planes intersect at a point.

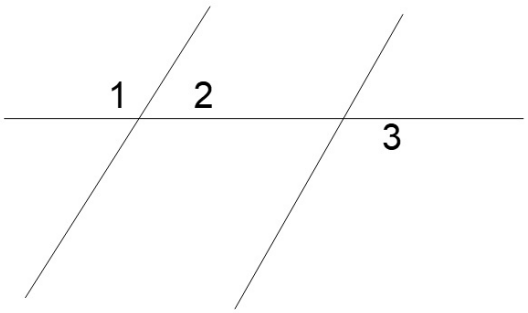
25. Three points are contained in more than one plane.

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.

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

Prove ∠1 = ∠3



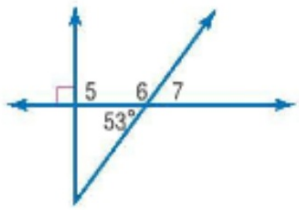
2-8 Proving Angle Relationships

Find the measure of each angle.

40. $\angle 5$

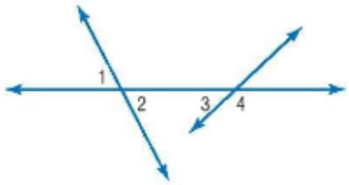
41. $\angle 6$

42. $\angle 7$



Example 8

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



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

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

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