GEOMETRY
CHAPTER 2 REVIEW HOMEWORK

NAME Key

1. Find the next two terms in each pattern:

   a) Tue, Fri, Mon, Thu, … 1a) Sunday, Wednesday

   b) $1.01, $10.01, $100.01, … 1b) $1,000.01 ; $10,000.01

2. Complete the conjecture: $1+3+5+7=16$ $1+1+1+1=4$ $3+5+7+9=24$ The sum of 4 odd numbers is a (n) even number.

3. Determine whether the conjecture is true or false. If the statement is false, give a counterexample:

   $\frac{2}{2}=1$ $\frac{4}{2}=2$ $\frac{6}{2}=3$ "The quotient of two even numbers is always even."

   False. Counterexample: $\frac{2}{2}=1$ ← odd

4. Consider the following statements. Determine if each statement is true or false. If false, provide a counterexample.

   "If 2 angles are congruent, then they are vertical angles." TRUE/ FALSE?

   False. 

   ≅, but not V.A.

   Is the converse TRUE/FALSE? Why?

   If 2 ∠s are V.A, then they are ≅

   "If 2 angles form a linear pair, then they are supplementary." TRUE/ FALSE?

   TRUE

   Is the converse TRUE/FALSE? Why?

   If 2 ∠s are supp, then they form a linear pair.

   } supp, but do not form a L.P.

5. Consider the statement: "Right angles are always congruent to one another."

   a) Rewrite the sentence as a conditional. Then circle the hypothesis and underline the conclusion

   If 2 ∠'s are right ∠s, then they are ≅ to each other

6. Consider the conditional statement: "If two angles form a linear pair, then the angles are supplementary." T
   Write the converse, inverse, and contrapositive of this true statement. Find the truth value of each.

   a) Converse: If 2 ∠s are supp, then they form a linear pair True / False

   b) Inverse: If 2 ∠s do not form a linear pair, then they are not supp. True / False

   c) Contrapositive: If 2 ∠s are not supp, then they do not form a linear pair. True / False

   d) Biconditional: Two angles form a linear pair iff the ∠'s are supp. True / False

   * The conditional and converse must both be true in order for the biconditional to be true.

7. Determine if the conjecture is valid by the Law of Syllogism: 7) Valid/Invalid (circle one)

Given: If your parents are upset, they will not let you borrow the car. $U \to B$
If you do not obey your curfew, your parents will be upset. $O \to U$

$O \to U$
$U \to B$
$\therefore O \to B$

Conclusion: If you do not obey your curfew, your parents will not let you borrow the car.

Correction if invalid: N/A

8. Draw a conclusion based on all three of the following given statements

Given: If Susan gets a raise, then she will move into her own apartment. $R \to A$
If Susan has the top sales numbers this month, then she will get a raise. $S \to R$
Susan has the top sales numbers this month.

so
$S \to R$
$R \to A$

Conclusion: Susan will move into her own apartment.

9. Identify the property that justifies each statement:

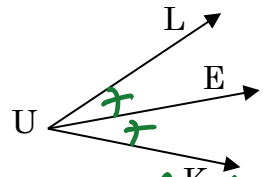
a) $\angle A \cong \angle A$ — a) Reflexive

b) IF $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$ — b) Transitive

c) IF $\overline{QU} \cong \overline{IZ}$, then $\overline{IZ} \cong \overline{QU}$ — c) Symmetric

d) If $\angle G \cong \angle E$ and $\angle G$ is supplementary to $\angle O$, then $\angle E$ is supplementary to $\angle O$. — d) Substitution

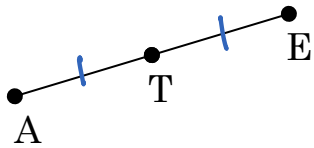
Fill in the conclusion using the diagram. Then provide a reason using a definition, theorem or postulate.



10. Given: $\overrightarrow{UE}$ bisects $\angle LUK$

Conclusion: $\angle LUE \cong \angle EUK$

Reason: If a ray bisects an $\angle$, then it ÷ the $\angle$ into 2 $\cong$ $\angle$s.



11. Given: $\overline{AT} \cong \overline{TE}$

Conclusion: T is midpt of $\overline{AE}$

Reason: If a pt. ÷ a segment into 2 $\cong$ segs, then it is the midpt of the segment

12. Given: $\angle G$ and $\angle E$ are supplementary
$\angle E$ and $\angle O$ are supplementary

2 $\angle$s same $\angle$.

Conclusion: $\angle G \cong \angle O$

Reason: If 2 $\angle$s are supp to the same $\angle$, then the 2 $\angle$s are $\cong$.