

Chapter 2 Review

1) Write the if-then form, converse, inverse, and the contrapositive of the statement "An angle whose measure is 34° is an acute angle." After each statement, write each one using symbols and variables p and q .

If-then - _____

Converse - _____

Inverse - _____

Contrapositive - _____

2) Is this a valid definition? Explain why or why not.

"If the sum of the measures of two angles is 90° , then the angles are complementary."

3) Write the definition of an equiangular polygon as a single biconditional statement.

4) List the three steps of inductive reasoning:

a. _____

b. _____

c. _____

For #6-8, describe the pattern and find the next two terms of the sequence.

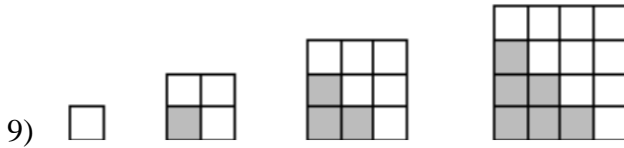
6) 2, 5, 14, 41, 122, _____, _____

7) 7, 21, 35, 49, 63, 77, _____, _____

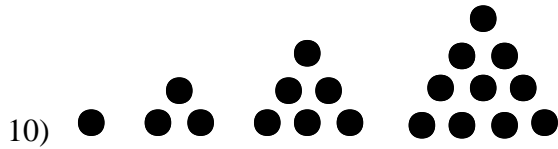
5) What is a conjecture that can be proven?

8) Z, 1, Y, 2, X, 4, W, 8, _____, _____

Draw the next shape in each pattern.



11) Find a counterexample to disprove the conjecture: "If the quotient of two numbers is positive, then the two numbers must be positive."



In #12 -#14, determine the logical conclusion and state which law you used: Law of Detachment (LOD), Law of Contrapositive (LOC), or Law of Syllogism (LOS). If no conclusion can be drawn, write "no conclusion."

12) If an angle is a right angle, then the angle measures 90° , $\angle B$ is a right angle.

13) If $x = 3$, then $2x = 6$
If $4x = 3$, then $x = 3$

14) I will eat pancakes, if I get hungry. I am not hungry right now.

15) Complete the following truth table

p	q			$\sim p \vee \sim q$

For #16-19, justify each statement with a property from algebra or property of congruence.

16) If $m\angle A + m\angle B + m\angle C = 180$ AND $m\angle C = 50$, then $m\angle A + m\angle B + 50 = 180$.

17) If $m\angle A + m\angle B + 50 = 180$, then $m\angle A + m\angle B = 130$.

18) If $6x = 18$, then $x = 3$.

19) If $\overline{AB} \cong \overline{CD}$ and $\overline{CD} \cong \overline{EF}$, then $\overline{AB} \cong \overline{EF}$

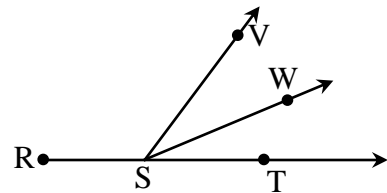
20) Solve the equation. Write a reason for each step.

$$-5(x-4)^2 + 8x - 6(x+7) = -5x(x-8) + 34$$

For #21 & 22, with the help of the diagram, name the definition, postulate, or theorem that justifies the statement.

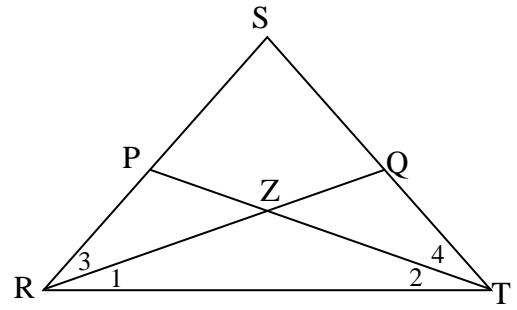
21) If $\overline{RS} \cong \overline{ST}$, then S is the midpoint of \overline{RT} .

22) If \overrightarrow{SW} bisects $\angle VST$, $\angle VSW \cong \angle WST$



23) Given: $m\angle 1 = m\angle 2$; $m\angle 3 = m\angle 4$

Prove: $m\angle SRT = m\angle STR$



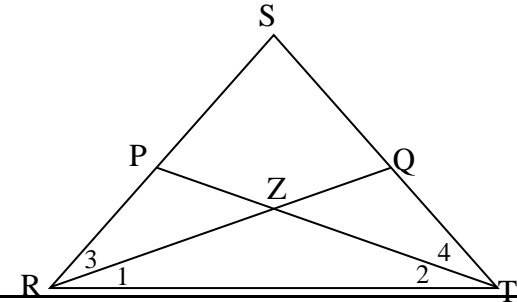
Statement

Reasons

1. $m\angle 1 = m\angle 2$
2. $m\angle 3 = m\angle 4$
3. $m\angle 1 + m\angle 3 = m\angle 2 + m\angle 4$
4. $m\angle 1 + m\angle 3 = m\angle SRT$
 $m\angle 2 + m\angle 4 = m\angle STR$
5. $\therefore m\angle SRT = m\angle STR$

24) Given: $RP = TQ$; $PS = QS$

Prove: $RS = TS$

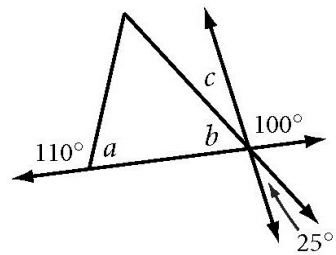


Statement

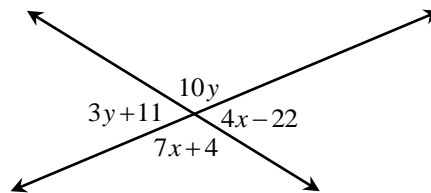
Reasons

1. $RP = TQ$; $PS = QS$
2. $RP + \underline{\hspace{2cm}} = TQ + \underline{\hspace{2cm}}$
3. $RS = \underline{\hspace{2cm}}$; $TS = \underline{\hspace{2cm}}$
4. $\underline{\hspace{2cm}}$

25) Find all the missing angles.



26) Find the measure of each angle in the diagram.



Terms and Symbols to Know

- if-then
- ∧ and
- ∴ therefore
- ~ not
- ∨

- Inductive Reasoning
- Conjecture
- Counterexample
- Conditional Statement
- Hypothesis
- Conclusion
- Converse
- Inverse
- Contrapositive
- Biconditional Statement
- Deductive Reasoning
- Law of Detachment

- Law of Contrapositive
- Law of Syllogism
- Congruent Complements Theorem
- Congruent Supplements Theorem
- Linear Pair Postulate
- Vertical Angles Theorem
- Reflexive Property of Equality
- Symmetric Property of Equality
- Transitive Property of Equality
- Substitution Property of Equality
- Addition Property of Equality
- Subtraction Property of Equality
- Multiplication Property of Equality
- Division Property of Equality
- Distributive Property
- Reflexive Property of Congruence
- Symmetric Property of Congruence
- Transitive Property of Congruence

Bonus:

Draw the following isometrically and orthographically:

