Chapter 2 Reasoning and Proof - REVIEW

2.2 Analyze Conditional Statements

Write the if-then form, the converse, the inverse, and the contrapositive of the statement:

"The heart of a mouse beats at least 600 times a minute."

If-then: *(If p, then q.)* If the animal is a mouse, then its heart beats at least 600 times a minute.

Converse: *(If q, then p.)* If the animal's heart beats at least 600 times a minute, then it is a mouse.

Inverse: *(If not p, then not q.)* If the animal is not a mouse, then its heart does not beat at least 600 times a minute.

Contrapositive: *(If not q, then not p.)* If the animal's heart does not beat at least 600 times a minute, then it is not a mouse.

Lesson 2.2 Review

Chapter 2 Reasoning and Proof - REVIEW

2.3 Apply Deductive Reasoning

For the statements below, can a conclusion be made?

If yes: 1) Make a conclusion
2) State which law of logic you used

If no: Write "no conclusion"

1. If two segments have the same length, they they are congruent.
   The length of $\overline{MP}$ is the same as the length of $\overline{WU}$.
   $\overline{MP}$ and $\overline{WU}$ are congruent. Law of Detachment

2. If x = 4, then 2x = 8.
   If x = 4, then $x^2 = 16$. No conclusion

3. If it rains on Tuesday, I will wear my rainboots.
   If I wear my rainboots, I will wear socks.
   If it rains on Tuesday, then I will wear socks.

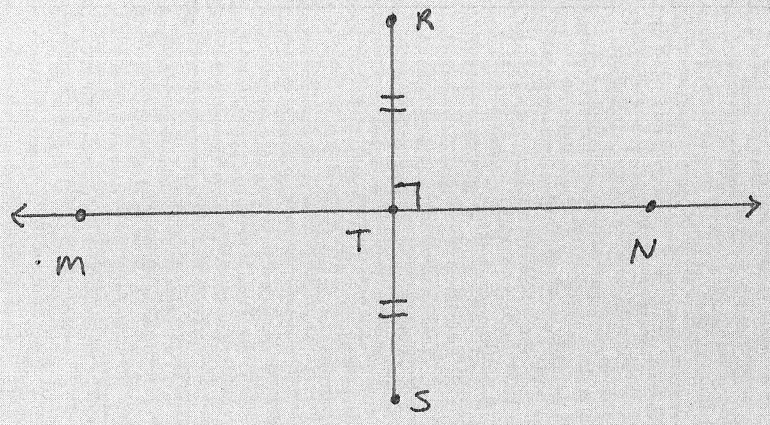
Lesson 2.3 Review

Chapter 2 Reasoning and Proof - REVIEW

2.4 Use Postulates and Diagrams

$\overleftrightarrow{MN}$ intersects $\overline{RS}$ at its midpoint T so that $\overleftrightarrow{MN} \perp \overline{RS}$.

Sketch a diagram that represents the given information.



Lesson 2.4 Review

Chapter 2 Reasoning and Proof - REVIEW

2.5 Reason Using Properties from Algebra

Solve $-4x + 2(3x + 8) = -(x + 8)$ and write a reason for each step.

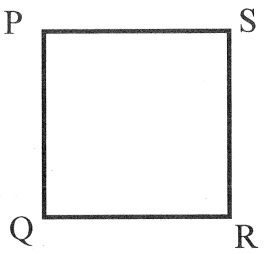
Statements	Reasons
1.) $-4x + 2(3x+8) = -(x+8)$	1.) Given
2.) $-4x + 6x + 16 = -x - 8$	2.) Distributive Prop.
3.) $2x + 16 = -x - 8$	3.) Simplify
4.) $3x + 16 = -8$	4.) Addition P.O.=
5.) $3x = -24$	5.) Subtraction P.O.=
6.) $x = -8$	6.) Division P.O.=

Lesson 2.5 Review

Proof Practice

Given: PQ = SR, SP = QR, $\overline{SR} \cong \overline{SP}$

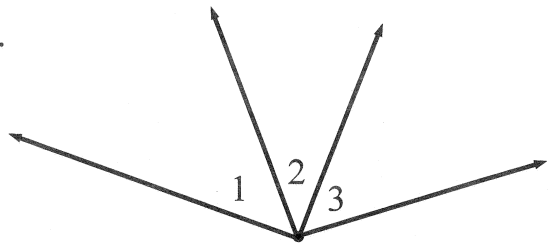
Prove: $\overline{PQ} \cong \overline{QR}$



Statements	Reasons
1.) $PQ = SR, SP = QR, \overline{SR} \cong \overline{SP}$	1.) Given
2.) $\overline{PQ} \cong \overline{SR}, \overline{SP} \cong \overline{QR}$	2.) Defn. of $\cong$ segments
3.) $\overline{PQ} \cong \overline{QR}$	3.) Transitive P.O. $\cong$
4.) X	4.) X

Given: $\angle 3$ and $\angle 2$ are complimentary.
$m\angle 1 + m\angle 2 = 90°$

Prove: $\angle 3 \cong \angle 1$

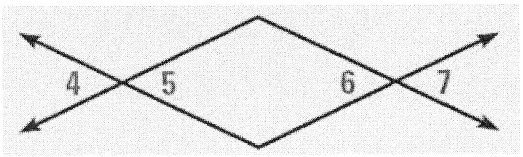


Statements	Reasons
1.) $\angle 3$ and $\angle 2$ are complimentary $m\angle 1 + m\angle 2 = 90°$	1.) Given
2.) $m\angle 3 + m\angle 2 = 90°$	2.) Defn. of complimentary $\angle$'s
3.) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3.) Transitive P.O. = / Substitution P.O. =
4.) $m\angle 1 = m\angle 3$	4.) Subtraction P.O. =
5.) $\angle 1 \cong \angle 3$	5.) Defn. of $\cong$ $\angle$'s
6.) $\angle 3 \cong \angle 1$	6.) Symmetric P.O. $\cong$

Proof Practice

Given: $\angle 5 \cong \angle 6$

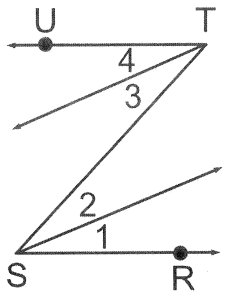
Prove: $\angle 4 \cong \angle 7$



Statements	Reasons
1.) $\angle 5 \cong \angle 6$	1.) Given
2.) $\angle 4 \cong \angle 5$ $\angle 6 \cong \angle 7$	2.) VA $\cong$ Thm.
3.) $\angle 4 \cong \angle 7$	3.) Transitive P.O. $\cong$

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

Prove: $\angle RST \cong \angle STU$



Statements	Reasons
1.) $\angle 1 \cong \angle 3$, $\angle 2 \cong \angle 4$	1.) Given
2.) $m\angle 1 = m\angle 3$, $m\angle 2 = m\angle 4$	2.) Defn. of $\cong$ $\angle$'s
3.) $m\angle 1 + m\angle 2 = m\angle RST$ $m\angle 3 + m\angle 4 = m\angle STU$	3.) AAP
4.) $m\angle 3 + m\angle 4 = m\angle RST$	4.) Substitution P.O. =
5.) $m\angle RST = m\angle STU$	5.) Substitution P.O. = / Transitive P.O. =
6.) $\angle RST \cong \angle STU$	6.) Defn. of $\cong$ $\angle$'s