

Geometry - Chapter 2 Review

Name: Key

1. If two numbers are even, then their sum is even.

Hypothesis: Two numbers are even

Conclusion: Their sum is even

Converse: If the sum of two numbers is even, then the two numbers are even.

2. If today is Sunday, then tomorrow is Monday.

Converse: If tomorrow is Monday, then today is Sunday.

3. If a number is even, then it is divisible by 2.

Converse: If a number is divisible by 2, then the number is even.

6. If an angle has measure  $105^\circ$ , then it is an obtuse angle.

Converse: If an angle is obtuse, then the angle measures  $105^\circ$

Inverse: If an angle does not measure  $105^\circ$ , then it is not an obtuse angle.

Contrapositive: If an angle is not an obtuse angle, then the angle does not measure  $105^\circ$ .

**name the property that justifies the statement.**

1. If  $AB + 5 = DE + 5$ , then  $AB = DE$ . Subtraction Prop. of Eq.
2.  $m\angle ABC = m\angle ABC$  Reflexive Prop. of Eq.
3. If  $3x = 9$ , then  $x = 3$ . Division Prop. of Eq.
4. If  $15 = CD$ , then  $CD = 15$ . Symmetric Prop. of Eq.
5. If  $\angle W \cong \angle Q$  and  $\angle Q \cong \angle S$ , then  $\angle W \cong \angle S$ . Transitive Prop. of Angle Congruence

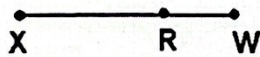
Determine the reason or justification for each new statement.

- |                      |                                    |
|----------------------|------------------------------------|
| 1. $5x + 7 = 9x - 3$ | 1. Given                           |
| 2. $7 = 4x - 3$      | 2. <u>Subtraction Prop. of Eq.</u> |
| 3. $10 = 4x$         | 3. <u>Addition Prop. of Eq.</u>    |
| 4. $\frac{5}{2} = x$ | 4. <u>Division Prop. of Eq.</u>    |
| 5. $x = \frac{5}{2}$ | 5. <u>Symmetric Prop. of Eq.</u>   |

Postulates and definitions can also be used as justifications in proofs.

Postulates used in proofs:

1.



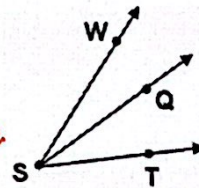
1.  $XR + RW = XW$

1. Segment Add. Postulate

2.

1.  $m\angle WSQ + m\angle QST = m\angle WST$

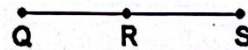
1. Angle Add Postulate



3.

1. R is the midpoint of  $\overline{QS}$

1. Given



2.  $\overline{QR} \cong \overline{RS}$

2. Def. of midpoint

4.

or  $QR = RS$

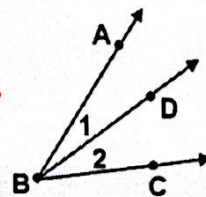
1.  $\overline{BD}$  bisects  $\angle ABC$

1. Given

2.  $\angle 1 \cong \angle 2$

2. Def. of bisector

or  $m\angle 1 = m\angle 2$



Given:  $\angle A$  is complementary to  $\angle C$ ,  $m\angle A = 30^\circ$

Prove:  $m\angle C = 60^\circ$

Pf:	Statements	Reasons
	1. $\angle A$ is complementary to $\angle C$	1. <u>Given</u>
	2. $m\angle A + m\angle C = 90^\circ$	2. <u>Def. of complementary angles</u>
	3. $m\angle A = 30^\circ$	3. <u>Given</u>
	4. $30^\circ + m\angle C = 90^\circ$	4. <u>Substitution Prop of Eq</u>
	5. $m\angle C = 60^\circ$	5. <u>Subtraction Prop. of Eq.</u>

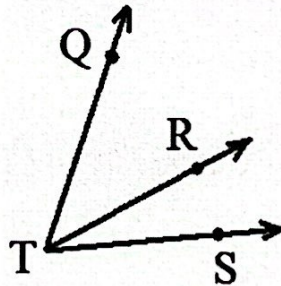
Write a two column proof:

Given:  $m\angle QTR = (2x+18)^\circ$

$m\angle RTS = (x+6)^\circ$

$m\angle QTS = 42^\circ$

Prove:  $x = 6$



Statements	Reasons
<u>Given</u>	
① $m\angle QTR = (2x+18)^\circ$	① Given
② $m\angle RTS = (x+6)^\circ$	② Given
③ $m\angle QTS = 42^\circ$	③ Given
④ $m\angle QTR + m\angle RTS = m\angle QTS$	④ Angle Addition Post.
⑤ $(2x+18) + (x+6) = 42$	⑤ Substitution Prop of Eq (could be multiple steps)
⑥ $3x + 24 = 42$	⑥ Simplify
⑦ $3x = 18$	⑦ Subtraction Prop of Eq
⑧ $x = 6$	⑧ Division Prop of Eq.