Geometry Honors
Chapter 2 Review

Name_____

**Fill in the blank for each sentence to make a true statement.**

1. If RS = 12 and 12 = XY, then RS = XY because of the transitive property.

2. Statements accepted as true without proof are called postulates.

3. Statements that can be proved are called theorem.

4. If $\angle A$ is a supplement of $\angle B$ and $\angle C$ is a supplement of $\angle B$, then $\angle A \cong \angle C$.

5. Write the converse of the conditional below and then evaluate if it is true or false. If false, provide a counterexample.

$\angle A \cong \angle B$
$m\angle A = 50$
$m\angle B = 50$

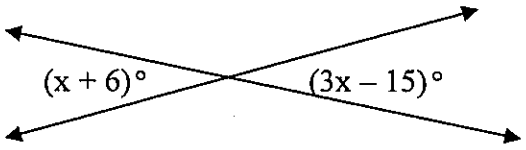
Conditional: If two angles are supplements of $\cong$ angles, then the two angles are $\cong$.

Converse: If 2 angles are $\cong$, then the angles are supplements of $\cong$ angle

True or False? True

6. Find the value of x.

$x + 6 = 3x - 15$
$21 = 2x$
$10.5 = x$




6. 10.5

7. Fill in always, sometimes, or never to make the statement true.

Congruent supplementary angles are always right angles.

8. If $m\angle A = 63$, find the supplement of the complement of $\angle A$.

8. 143

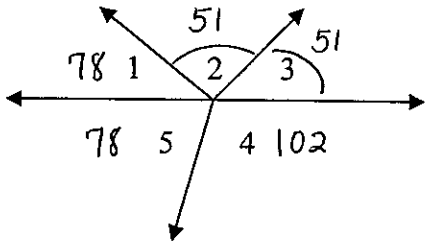
$90 - 63 = 27$ $\quad 180 - 27 = 143$

9. The complement of an angle is twenty-four more than twice the measure of the angle. Find the measure of the angle and its complement.

$90 - x = 2x + 24$
$66 = 3x$
$22 = x$
$Compl = 68$

9. 22, 68

**10. Use the diagram and the following information below.**




$\angle 1$ and $\angle 4$ are supplementary, $\angle 2 \cong \angle 3$, and $m\angle 5 = 78$

$m\angle 2 =$ 51

11. $\angle A$ and $\angle B$ complementary. $\angle A$ is 36° less than $\angle B$.

$m\angle A =$ 27

$m\angle B =$ 63

$m\angle A = x - 36$

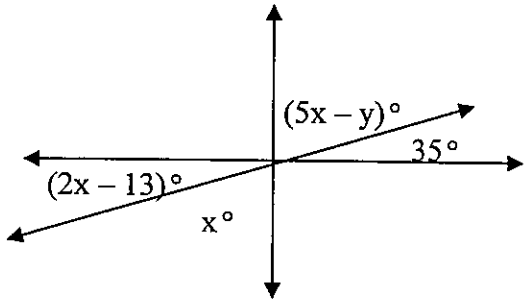
$m\angle B = x$

$x - 36 + x = 90$

$2x = 126$

$x = 63$

12. Solve for x and y using the diagram to the right.




$2x - 13 = 35$

$2x = 48$

$x = 24$

$x = 5x - y$

$24 = 120 - y$

$-96 = -y$

x = 24 y = 96

**Supply the missing statements or reasons for the proof below.**

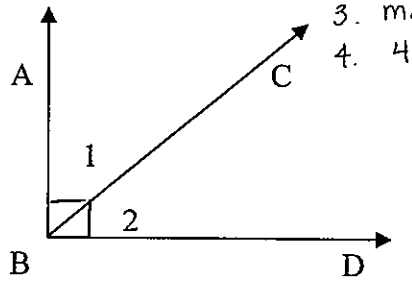
13. Given: $\angle A$ and $\angle B$ are right angles
Prove: $\angle A \cong \angle B$

| **Statements** | **Reasons** |
|---|---|
| 1. $\angle A$ and $\angle B$ are right angles | 1. Given |
| 2. $m\angle A = 90$, $m\angle B = 90$ | 2. Def Rt. Angle |
| 3. $m\angle A = m\angle B$ | 3. Substitution Property |
| 4. $\angle A \cong \angle B$ | 4. Def $\cong$ |

**Write a 2-column deductive proof.**

14. Given: $\overrightarrow{BA} \perp \overrightarrow{BD}$, $m\angle 1 = 45$

Prove: $\overrightarrow{BC}$ bisects $\angle ABD$




2. $\angle 1 \& \angle 2$ compl.
3. $m\angle 1 + m\angle 2 = 90$
4. $45 + m\angle 2 = 90$

Show $\angle 1 \cong \angle 2$

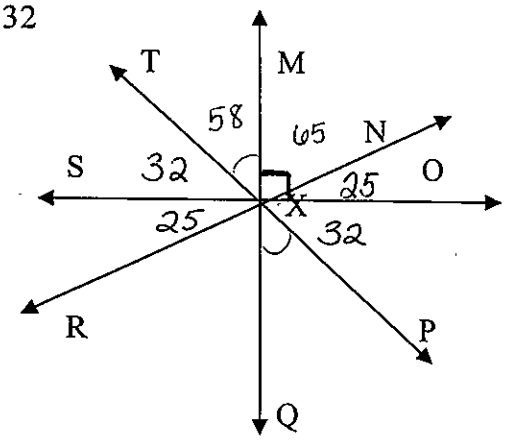
| Statements | Reasons |
|---|---|
| 1. $\overrightarrow{BA} \perp \overrightarrow{BD}$; $m\angle 1 = 45$ | 1. Given |
| 2. $\angle ABD$ is a right angle | 2. Def $\perp$ lines |
| 3. $m\angle ABD = 90$ ~~$m\angle 1 + m\angle 2 = m\angle ABD$~~ | 3. Def Rt. Angle Ang Add Post. |
| 4. $m\angle 1 + m\angle 2 = 90$ | 4. Substitution Prop |
| 5. $45 + m\angle 2 = 90$ | 5. Substitution Prop |
| 6. $m\angle 2 = 45$ | 6. Subtraction Prop |
| 7. $m\angle 1 = m\angle 2$ | 7. Substitution Prop. |
| 8. $\angle 1 \cong \angle 2$ | 8. Def $\cong$ |
| 9. $\overrightarrow{BC}$ bisects $\angle ABD$ | 9. Def $\angle$ Bisector |

15. Provide a counterexample for the conditional: If $x^2 = 36$, then x = 6. $x = -6$

**Use the diagram and the given information to answer each question below.**

$\overline{MQ}, \overline{TP}, \overline{SO}, \overline{RN}$ all intersect at X, $m\angle NXO = 25$, $m\angle SXT = 32$

$m\angle MXO = 90$




16. $m\angle NXO =$ 25
17. $m\angle OXP =$ 32
18. $m\angle RXT =$ 57
19. $m\angle SXQ =$ 90
20. $m\angle TXO =$ 148
21. $m\angle OXR =$ 180
22. $m\angle SXN =$ 155
23. $\angle MXN \cong$ $\angle QXR$
24. $\angle TXM \cong$ $\angle PXQ$
25. $\angle SXM \cong$ $\angle OXM$

more answers