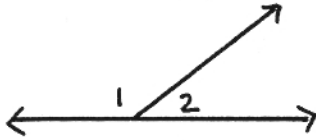


Adv. Geometry
 Complementary & Supplementary Thms
 Worksheet #5

Name _____

I. Find the measure of each angle:

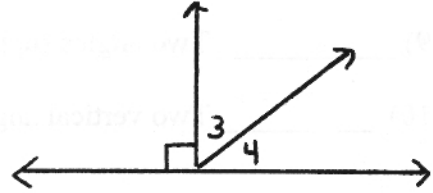
1)



$$m\angle 2 = 54^\circ$$

$$m\angle 1 = \underline{\hspace{2cm}}$$

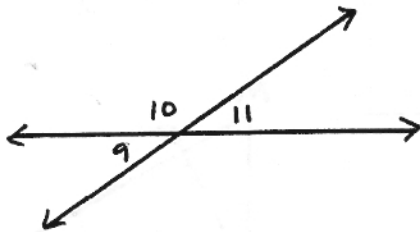
2)



$$m\angle 3 = 62^\circ$$

$$m\angle 4 = \underline{\hspace{2cm}}$$

3)

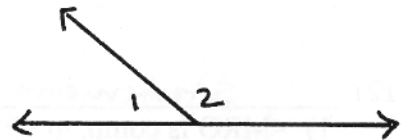


$$m\angle 9 = 3x$$

$$m\angle 10 = 5x + 4$$

$$m\angle 11 = \underline{\hspace{2cm}}$$

4)



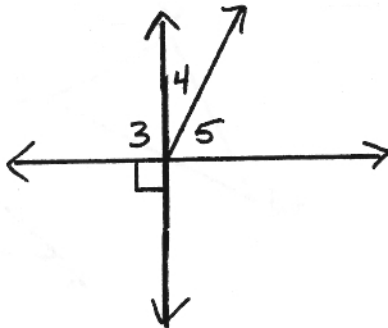
$$m\angle 1 = x + 10$$

$$m\angle 2 = 3x + 18$$

$$m\angle 1 = \underline{\hspace{2cm}}$$

$$m\angle 2 = \underline{\hspace{2cm}}$$

5)



$$m\angle 4 = 2x - 5$$

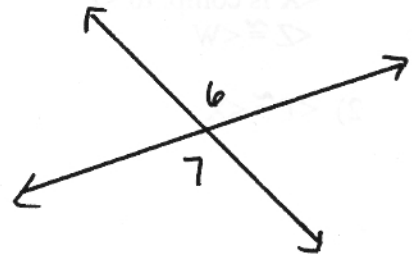
$$m\angle 5 = 4x - 13$$

$$m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}}$$

$$m\angle 5 = \underline{\hspace{2cm}}$$

6)



$$\angle 9 \text{ is comp. to } \angle 10$$

$$\angle 7 \cong \angle 9$$

$$m\angle 8 = 41^\circ$$

$$m\angle 7 = \underline{\hspace{2cm}}$$

$$m\angle 9 = \underline{\hspace{2cm}}$$

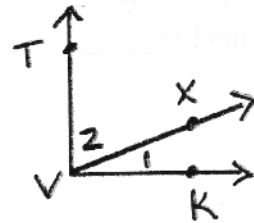
$$m\angle 10 = \underline{\hspace{2cm}}$$

II. Determine whether the following statements are *always*, *sometimes*, or *never* true.

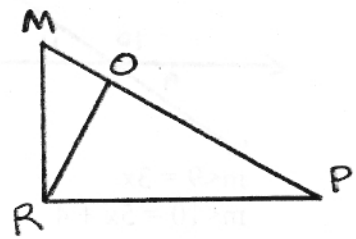
- 7) _____ Supplementary angles are congruent.
- 8) _____ If two angles form a linear pair, then they are complementary.
- 9) _____ Two angles supplementary to the same angle are congruent.
- 10) _____ Two vertical angles form a linear pair.

III. Fill in the correct reasons for each two-column proof.

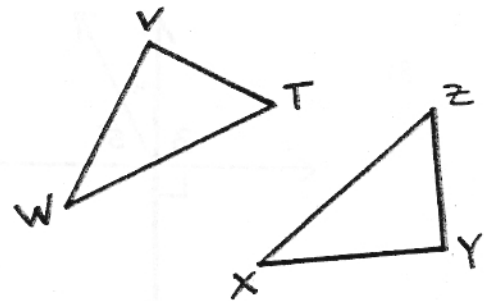
Statement	Reason
1) $\angle TVK$ is a rt. \angle	1) Given
2) $\angle 1$ is comp. to $\angle 2$	2)



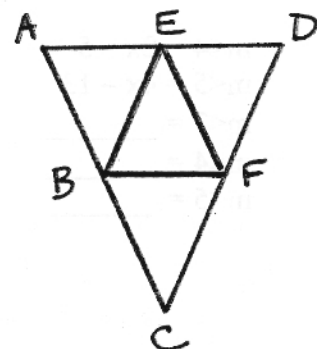
Statement	Reason
1) $\angle MRO$ is comp. to $\angle PRO$	1) Given
2) $\angle MRP$ is rt. \angle	2)



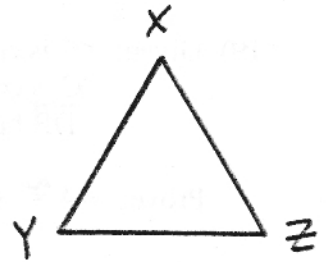
Statement	Reason
1) $\angle T$ is comp. to $\angle W$ $\angle X$ is comp. to $\angle Z$ $\angle Z \cong \angle W$	1) Given
2) $\angle T \cong \angle X$	2)



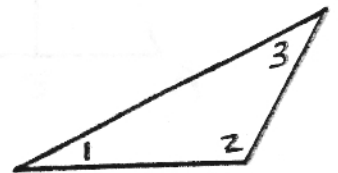
Statement	Reason
1) $BC + BE = AD$ $BE = EF$	1) Given
2) $BC + EF = AD$	2)



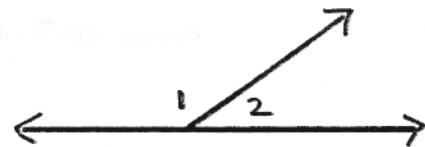
15)	statement	reason
	1) $\angle X = \angle Y$ $\angle X = \angle Z$	1) Given
	2) $\angle Y = \angle Z$	2)



16)	statement	reason
	1) $\angle 1$ is supp. to $\angle 2$ $\angle 3$ is supp. to $\angle 2$	1) Given
	2) $\angle 1 \cong \angle 3$	2)



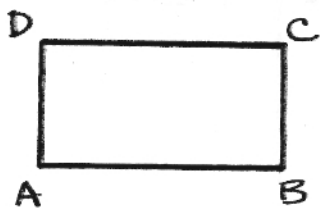
17)	statement	reason
	1) Diagram as shown	1) Given
	2) $\angle 1$ and $\angle 2$ are a linear pair	2)
	3) $\angle 1$ is supp. to $\angle 2$	3)



IV. Complete each two-column proof.

- 18) Given: $\angle A$ is a right angle
 $\angle B$ is a right angle
 $\angle B \cong \angle D$

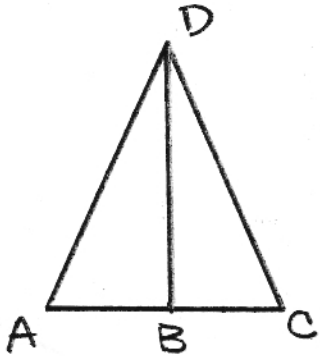
Prove: $\angle A \cong \angle D$



statement	reason
1) $\angle A$ is a rt. \angle $\angle B$ is a rt. \angle $\angle B \cong \angle D$	1) Given

- 19) Given: $\angle A$ is comp. to $\angle ADB$
 $\angle C$ is comp. to $\angle CDB$
 \overline{DB} bisects $\angle ADC$

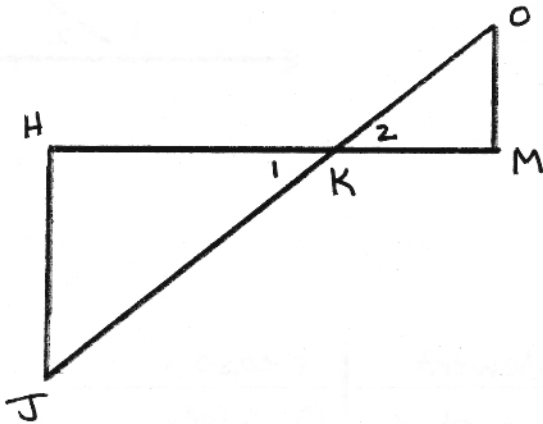
Prove: $\angle A \cong \angle C$



statement	reason
1) $\angle A$ is comp. to $\angle ADB$ $\angle C$ is comp. to $\angle CDB$ \overline{DB} bis $\angle ADC$	1) Given

- 20) Given: $\angle O$ is comp. to $\angle 2$
 $\angle J$ is comp. to $\angle 1$

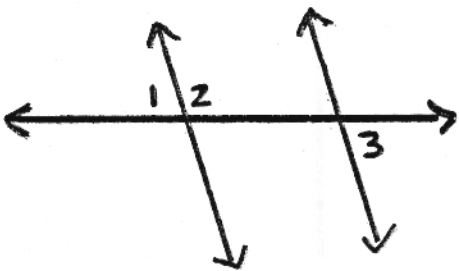
Prove: $\angle O \cong \angle J$



statement	reason
1) $\angle O$ is comp. to $\angle 2$ $\angle J$ is comp. to $\angle 1$	1) Given

- 21) Given: $\angle 2$ is supp. to $\angle 3$

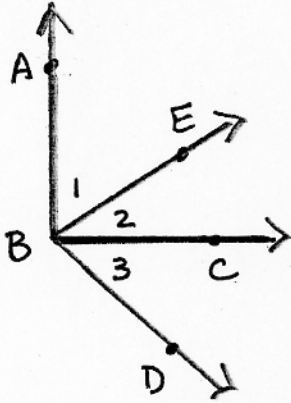
Prove: $\angle 1 \cong \angle 3$



statement	reason
1) $\angle 2$ is supp. to $\angle 3$	1) Given

22) Given: $\overline{AB} \perp \overline{BC}$
 $\angle 1$ is comp. to $\angle 3$

Prove: $\angle 2 \cong \angle 3$



statement	reason
1) $\overline{AB} \perp \overline{BC}$	1) Given
$\angle 1$ is comp. to $\angle 3$	

****BONUS****

Solve for x and find the $m\angle ABC$.

Given: $m\angle ABD = t^2 - 6t$

$m\angle CBE = \frac{1}{2}t + 42$

Find: $t = \underline{\hspace{2cm}}$

$m\angle ABD = \underline{\hspace{2cm}}$ (2 possible values?)

