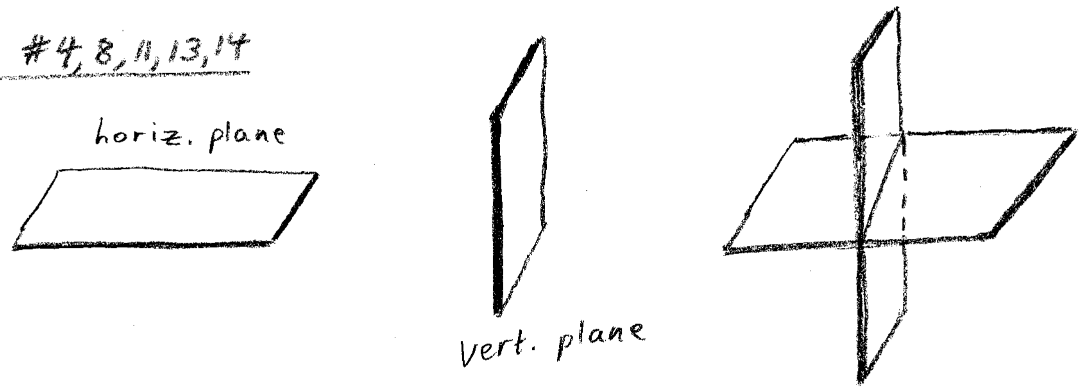
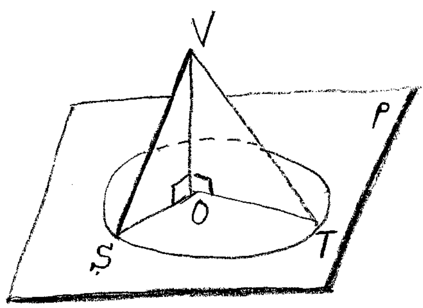
Mr. Hansen
Geom. HW due 11/18/2008

<u>§6.1 #4, 8, 11, 13, 14</u>

4.



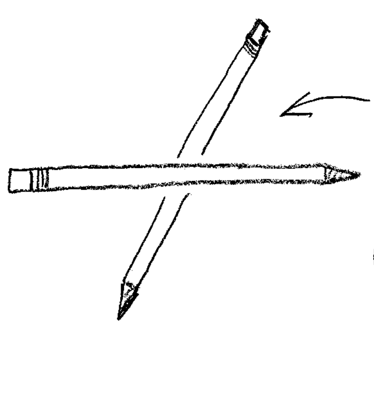
8.



Given: $\odot O$ lies in plane p
$\overleftrightarrow{VO} \perp \overleftrightarrow{OS}$
$\overleftrightarrow{VO} \perp \overleftrightarrow{OT}$
Prove: $\angle VSO \cong \angle VTO$

1. $\odot O$ lies in plane p	1. G
2. $\overleftrightarrow{VO} \perp \overleftrightarrow{OS}$	2. G
3. $\overleftrightarrow{VO} \perp \overleftrightarrow{OT}$	3. G
4. $\angle VOS$, $\angle VOT$ are rt.	4. Def. $\perp$
5. $\angle VOS \cong \angle VOT$	5. All rt. $\angle$s are $\cong$
6. $\overline{OS} \cong \overline{OT}$	6. Radii of a $\odot$ are $\cong$
7. $\overline{VO} \cong \overline{VO}$	7. Refl.
8. $\triangle VOS \cong \triangle VOT$	8. SAS (7, 5, 6)
9. $\angle VSO \cong \angle VTO$	9. CPCTC

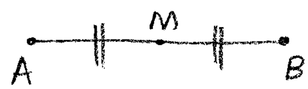
11.



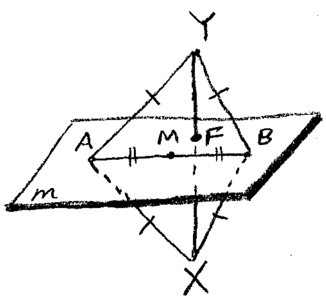
Hold lower pencil several inches below the upper one.

We can hold pencils so as to represent non-intersecting, non-parallel lines. In this event, the lines are noncoplanar.

13. Imagine 2 pts., X and Y, such that Y is directly above point M (above the paper, that is) and X is directly underneath point M (embedded in the desk) at a depth matching Y's height above the paper.

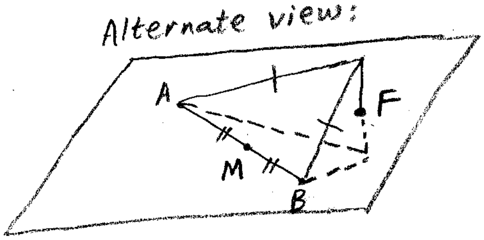


Then $AY = BY$ and $AX = BX$, and $\overleftrightarrow{XY}$ is indeed a $\perp$ bisector of $\overline{AB}$.

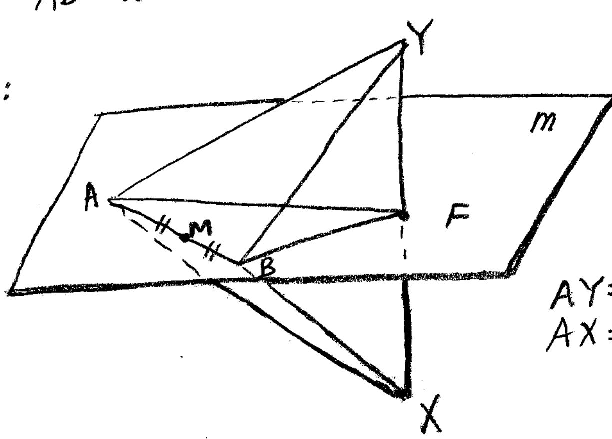


However, the "3-D" illustration at left shows that if the vertical line connecting X and Y is shifted toward the rear, so that YX passes through plane m at foot F, then it is possible to have $AY = BY$ and $AX = BX$ **without** having $\overleftrightarrow{XY}$ $\perp$ bis. $\overline{AB}$, since $\overleftrightarrow{YX}$ does not intersect $\overline{AB}$ at all. Answer: NOT NECESSARILY

Alternate view:



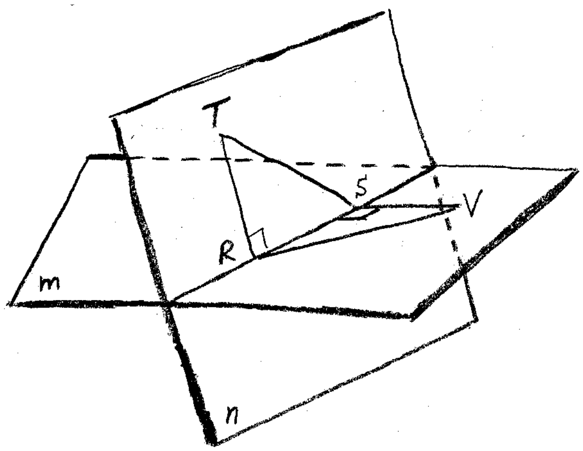
Better view:



Note: ΔABF lies in plane m.

$AY = BY$
$AX = BX$

14.



Given: planes m, n

$m \cap n = \overleftrightarrow{RS}$

$R, S, V \in m$ [i.e., $\triangle RSV$ determines plane m]

$R, S, T \in n$ [i.e., $\triangle RST$ determines plane n]

$\overline{TS} \cong \overline{VR}$

$\overline{TR} \perp \overline{RS}$

$\overline{VS} \perp \overline{RS}$

Prove: $\overline{TR} \cong \overline{VS}$

1. $m \cap n = \overleftrightarrow{RS}$	1. G
2. $R, S, V \in m$	2. G
3. $R, S, T \in n$	3. G
4. $\overline{TS} \cong \overline{VR}$	4. G
5. $\overline{TR} \perp \overline{RS}$, $\overline{VS} \perp \overline{RS}$	5. G
6. $\angle TRS$, $\angle VSR$ are rt.	6. Def. $\perp$
[7. $\triangle TRS$, $\triangle VSR$ are rt.	7. Def. rt. $\triangle$]
8. $\overline{RS} \cong \overline{RS}$	8. Refl.
9. $\triangle TRS \cong \triangle VSR$	9. HL (6 or 7; 4, 8)
10. $\overline{TR} \cong \overline{VS}$	10. CPCTC