

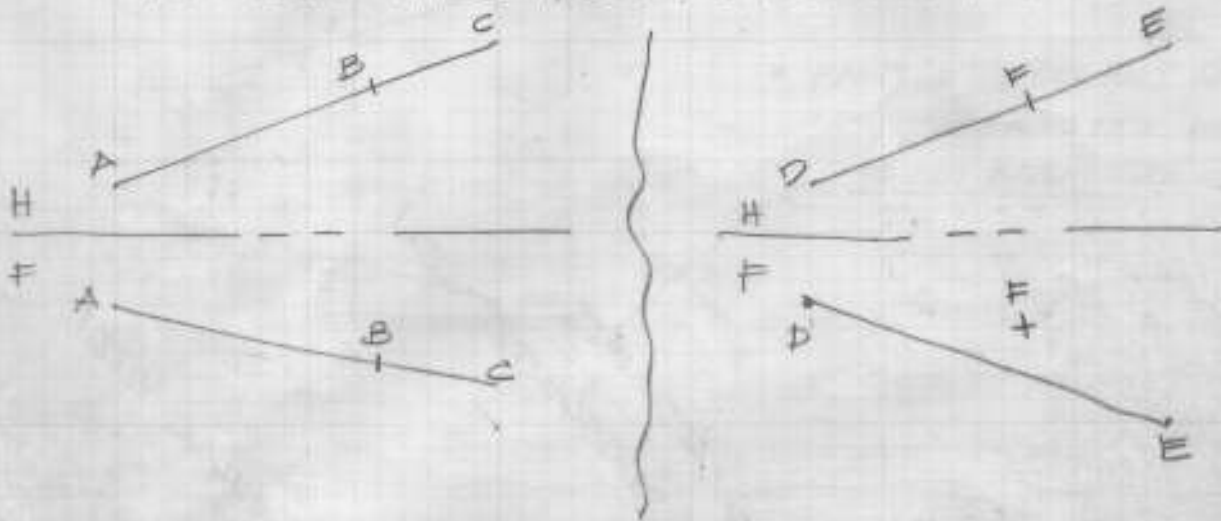
- LINE CHARACTERISTICS -

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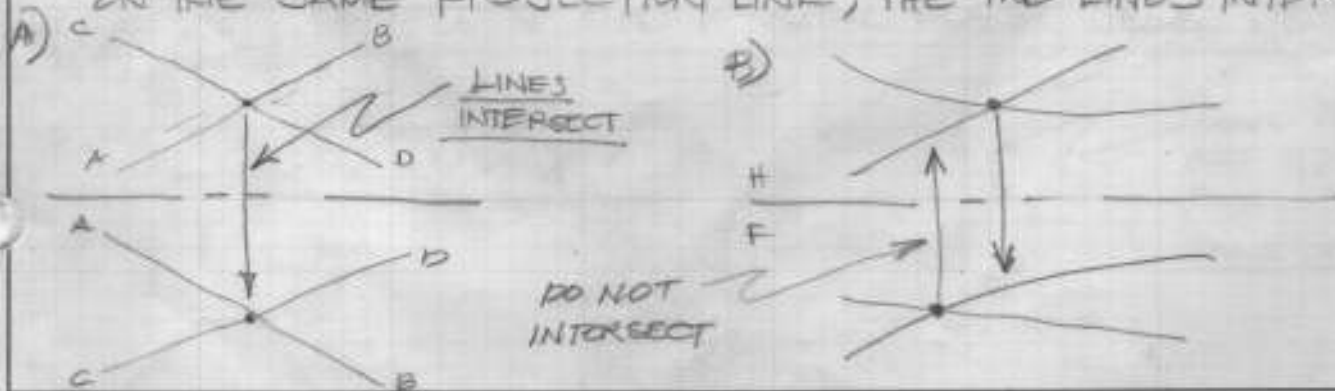
LOCATE A POINT ON A LINE

* NOTE: SOMETIMES A POINT IS LOCATED ON A LINE AND SOMETIMES IT ONLY APPEARS TO BE.



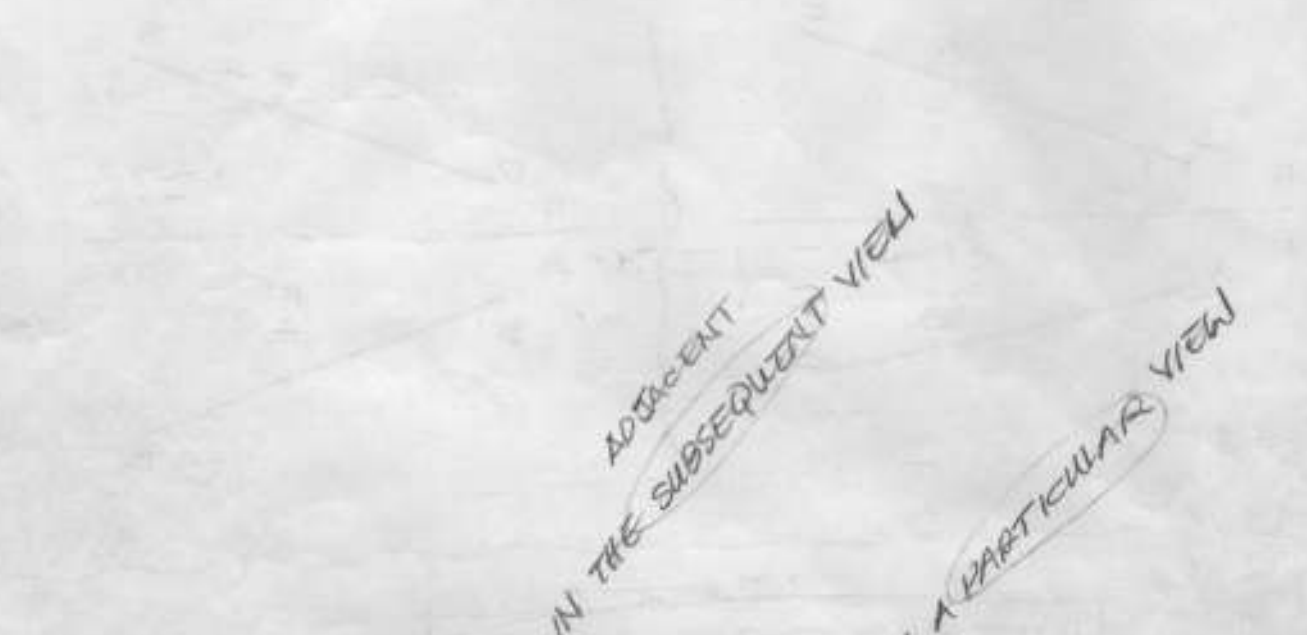
INTERSECTING LINES

- 1) WHEN LINES INTERSECT, THE POINT OF INTERSECTION IS A POINT THAT LIES ON BOTH LINES.
- 2) A MINIMUM OF (2) VIEWS ARE REQUIRED TO TEST FOR INTERSECTION.
- 3) IF THE CROSSING POINT IN ADJACENT VIEWS LINE-UP ON THE SAME PROJECTION LINE, THE TWO LINES INTERSECT.



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THE POINT OF VIEW IS THE POINT FROM WHICH THE OBJECT IS VIEWED. IT IS THE POINT FROM WHICH THE PROJECTING LINE IS DRAWN.



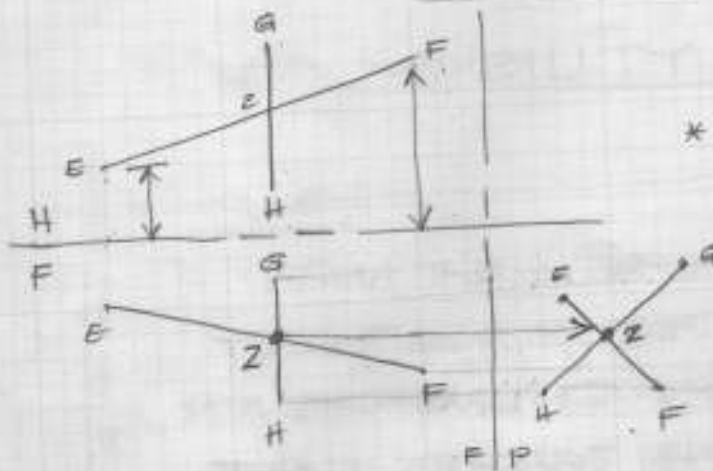
* RULE:

FROM THE CROSSING POINT...
WHICHEVER THE PROJECTING LINE
TOUCHES FIRST... THAT LINE WILL BE
THE VISIBLE LINE IN THE ORIGINATING
VIEW.



SPECIAL CASE

WHEN PROJECTION ALIGNMENT DOES NOT WORK... AN ADDITIONAL VIEW IS NECESSARY.

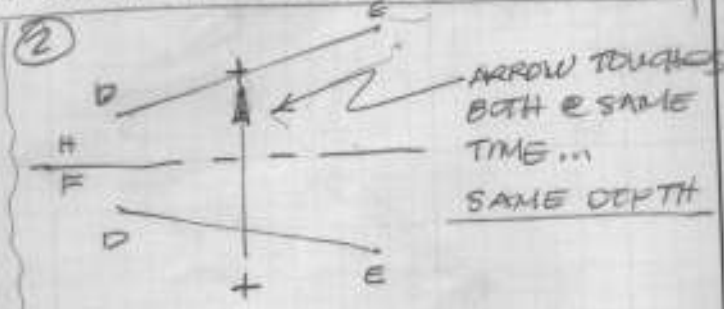
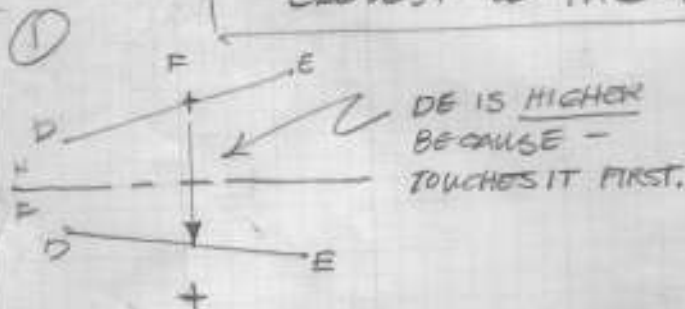


* POINT 'Z' DOES NOT LINE UP, THEREFORE THE LINES DO NOT INTERSECT.

VISIBILITY OF A POINT AND A LINE

* WHEN A POINT IS NOT LOCATED ON A LINE, IT IS IMPORTANT TO KNOW THE RELATIONSHIP BETWEEN THE TWO. (IN FRONT OR BEHIND, ABOVE OR BELOW)

- RULES:
- 1) WHEN LOOKING @ TOP VIEW: WHICHEVER IS HIGHEST IN ELEVATION WILL BE VISIBLE.
 - 2) WHEN LOOKING @ FRONT VIEW: WHICHEVER IS CLOSEST TO THE FRONTAL PLANE, WILL BE VISIBLE.



* RULE:

- FROM THE INTERSECTING POINT IN A PARTICULAR VIEW.,, WHICHEVER THE PROJECTOR'S LINE TOUCHES FIRST IN THE SUBSEQUENT VIEW; THAT LINE WILL BE VISIBLE IN THE ORIGINATING VIEW.

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VEISIBILITY

RULE:

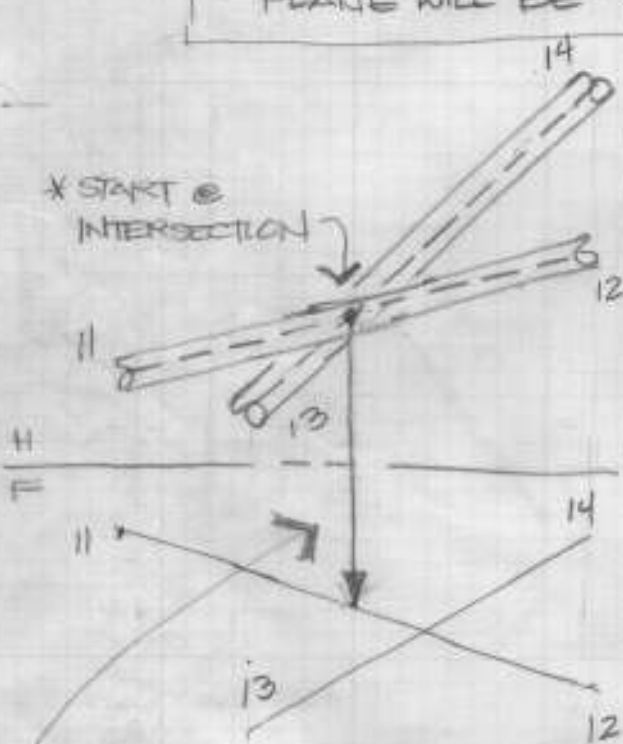
- FROM THE INTERSECTING POINT IN ONE PLANE, ...
WHICHEVER A PROJECTING LINE TOUCHES FIRST IN THE ADJACENT PLANE; ^{THAT} LINE WILL BE VISIBLE IN THE ORIGINAL PLANE.

VISIBILITY OF LINES

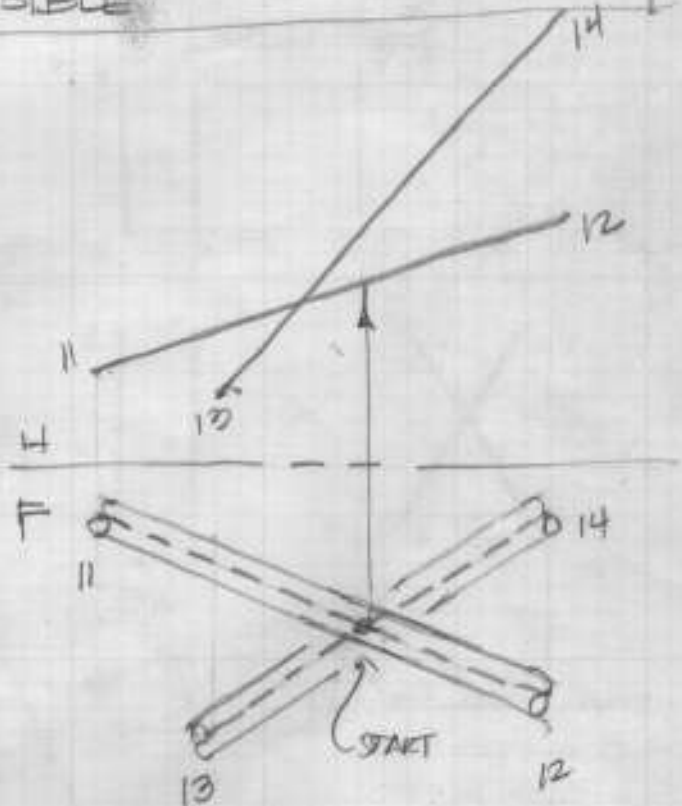
* WHEN TWO LINES DO NOT INTERSECT, IT IS IMPORTANT TO KNOW WHICH LINE IS VISIBLE AND WHICH IS HIDDEN.

- RULES:
- 1) WHEN LOOKING @ TOP VIEW: WHICHEVER IS HIGHEST IN ELEVATION WILL BE VISIBLE
 - 2) WHEN LOOKING AT FRONT VIEW: WHICHEVER LINE IS CLOSER TO THE FRONTAL PROJECTION PLANE WILL BE VISIBLE

?



* PROJECTION LINE TOUCHES 11-12 FIRST; THEREFORE IT IS HIGHER.



* PROJECTION LINE TOUCHES 11-12 FIRST; THEREFORE IT IS HIGHER.

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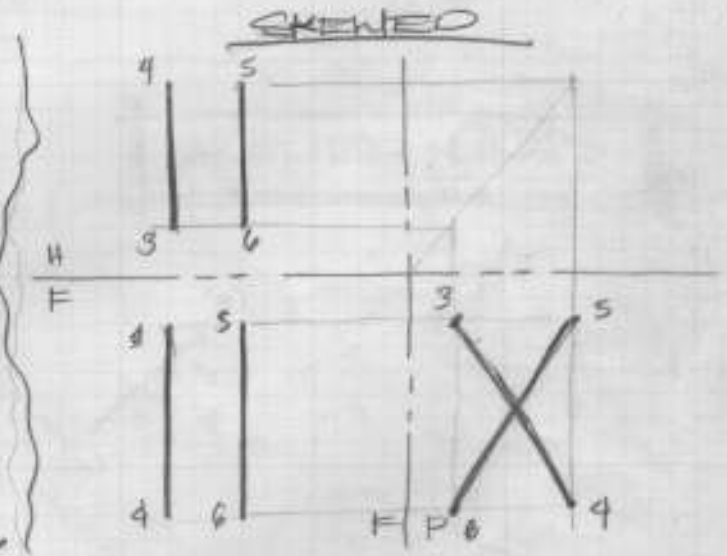
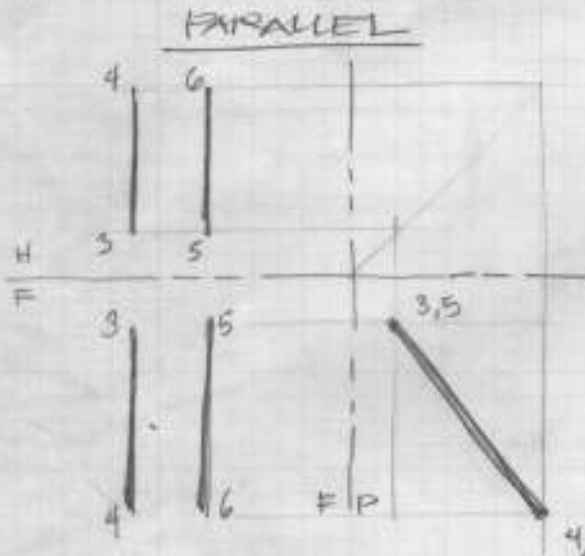
PARALLEL LINES

* WHEN LINES ARE PARALLEL, THEY ARE EQUAL DISTANCE FROM EACH OTHER THROUGHOUT THEIR LENGTH.

RULES: 1) TWO VIEWS ARE NEEDED PROVE THE LINES ARE PARALLEL

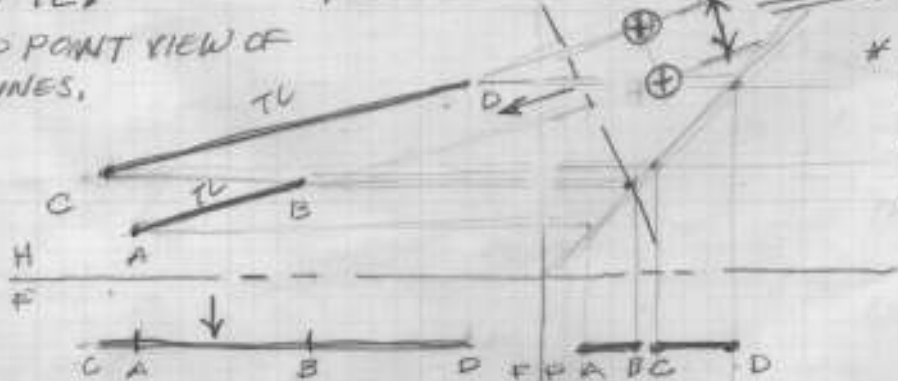
2) IF LINES ARE PARALLEL IT WILL APPEAR IN AT LEAST (3) VIEWS.

EXCEPT: a) WHEN LINES APPEAR AS END VIEWS/POINTS
 b) WHEN LINES APPEAR BEHIND EACH OTHER.



- 1) FIND TL.
- 2) FIND POINT VIEW OF TL LINES.

FIND POINT VIEWS (HOLD)



* PARALLEL LINES ONE BEHIND THE OTHER AND AS POINTS

SHORTEST DISTANCE

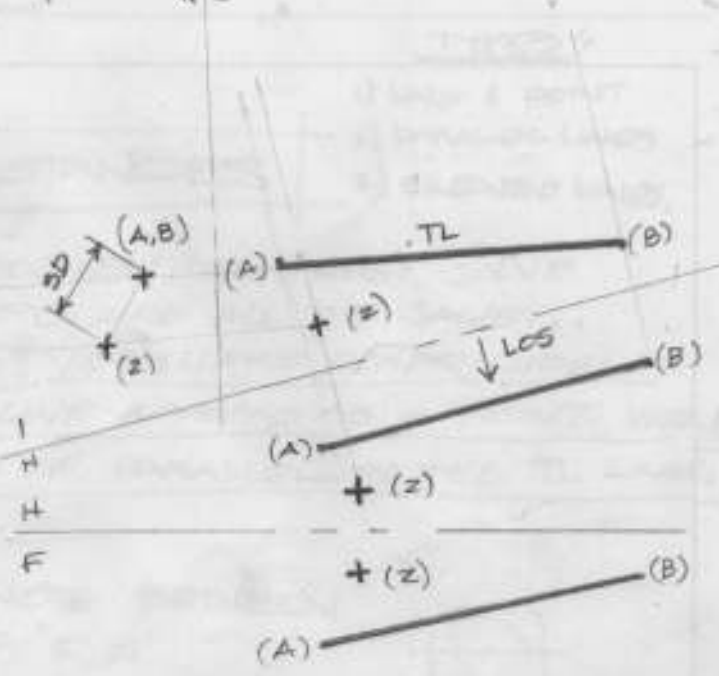
RULES

- 1) ONE LINE MUST APPEAR AS A POINT VIEW (PV)
- 2) SHORTEST DISTANCE IS ALWAYS MEASURED PERPENDICULAR TO THE LINES.

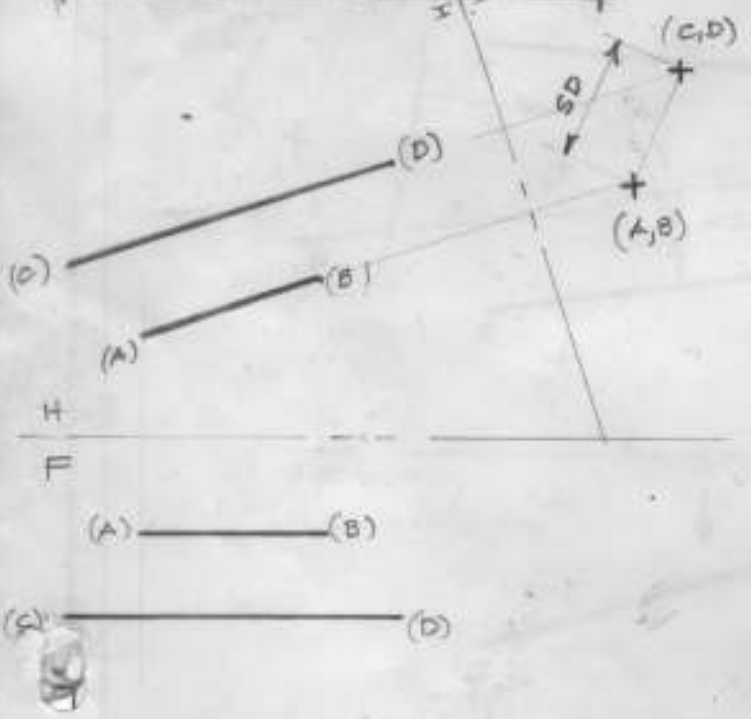
NOTE:

3) TO GET A POINT VIEW... THE 'LOS' MUST BE PARALLEL TO THE 'TL' LINE.

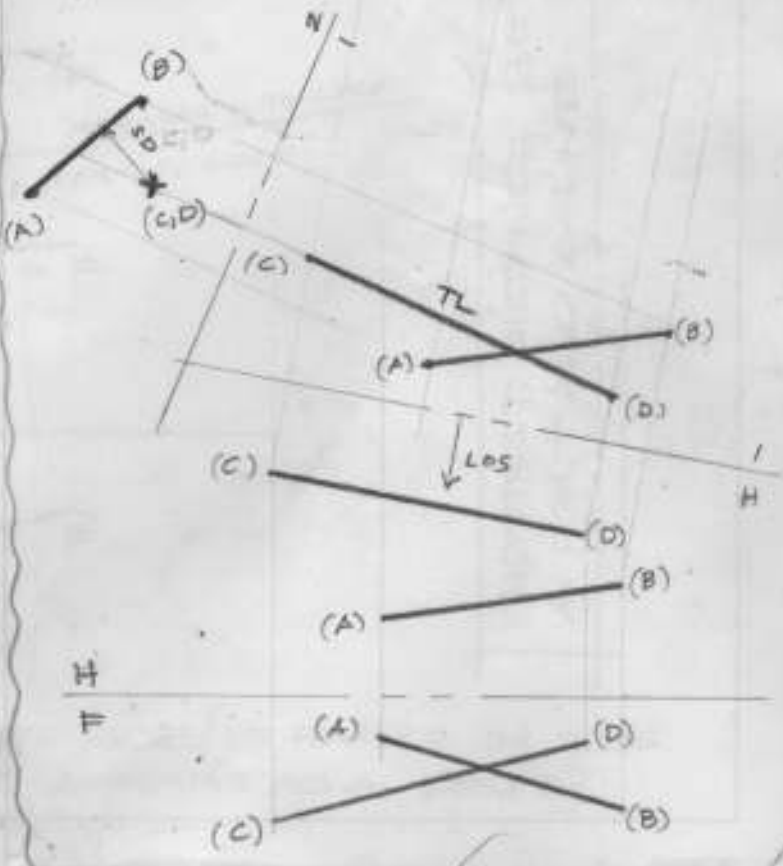
LINE & POINT



PARALLEL LINES



SKEWED LINES





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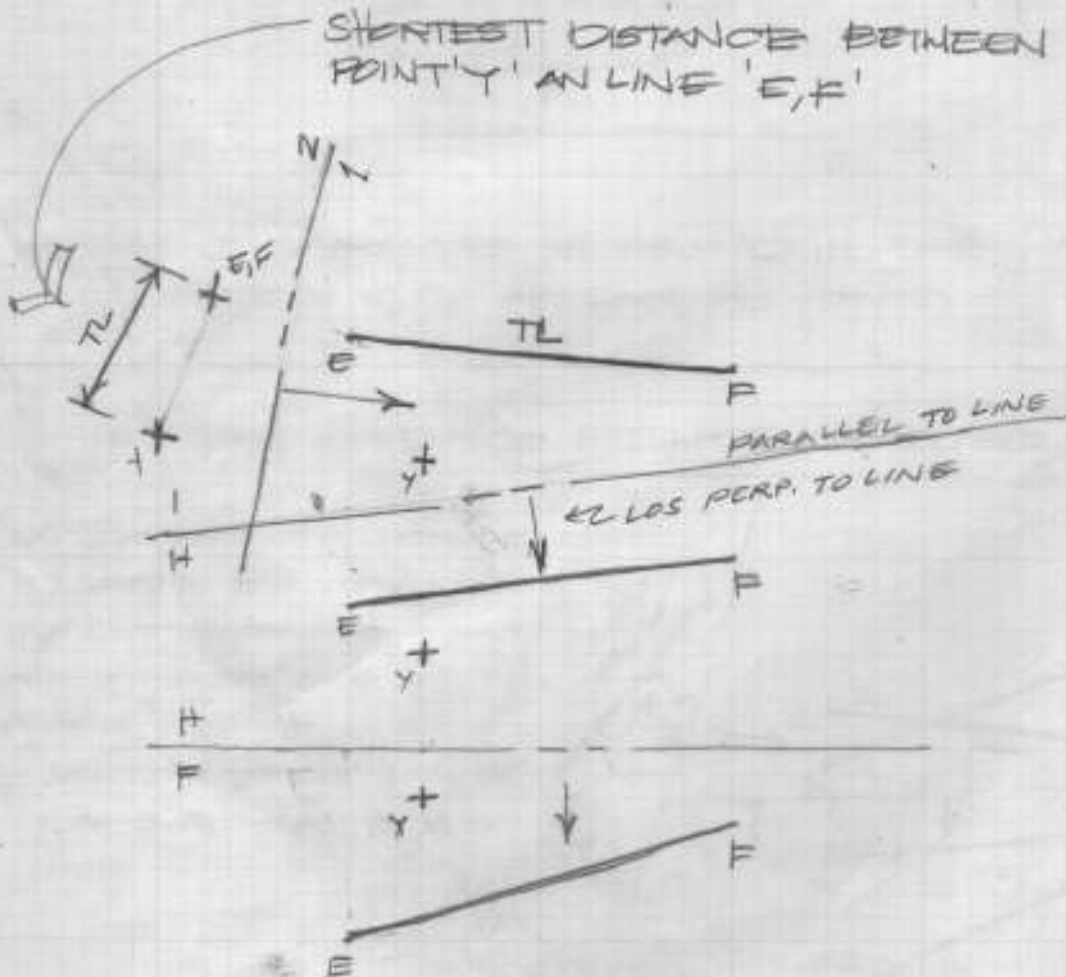
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TYPES:

- 1) LINE & POINT
- 2) PARALLEL LINES
- 3) SKEWED LINES

SHORTEST DISTANCES

* NO MATTER WHICH TYPE OF PROBLEM, YOU MUST SOLVE FOR, THE STEPS OF PROCEDURE ARE ALL THE SAME...
 * THE SHORTEST DISTANCE IS ALWAYS PERPENDICULAR TO LINES AND AT LEAST ONE LINE APPEARS AS A POINT. VIEW!
 * NOTE! YOUR LOS MUST BE PARALLEL TO THE TL LINE.



SHORTEST DISTANCE BETWEEN A POINT AND A LINE

NOTE: THE SHORTEST DISTANCE [IS FOUND IN THE VIEW WHERE THE LINE APPEARS AS A POINT.]

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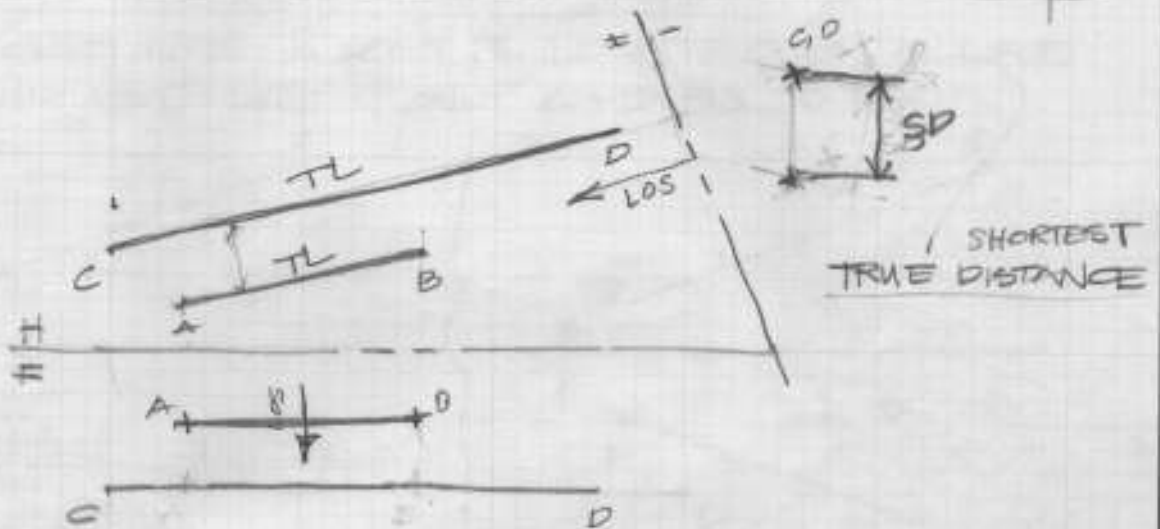
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SHORTEST DISTANCE BETWEEN PARALLEL LINES



* NOTE: CLEARANCE IS FOUND IN THE VIEW WHERE A, B & C, D APPEAR AS POINTS.

SHORTEST DISTANCE BETWEEN SKewed LINES

NOTE: SHORTEST DISTANCE [IS FOUND IN THE VIEW WHERE ONE LINE APPEARS AS A POINT AND THE OTHER LINE IS OBLIQUE.]

* SHORTEST DISTANCE WILL BE PERPENDICULAR TO BOTH LINES.

