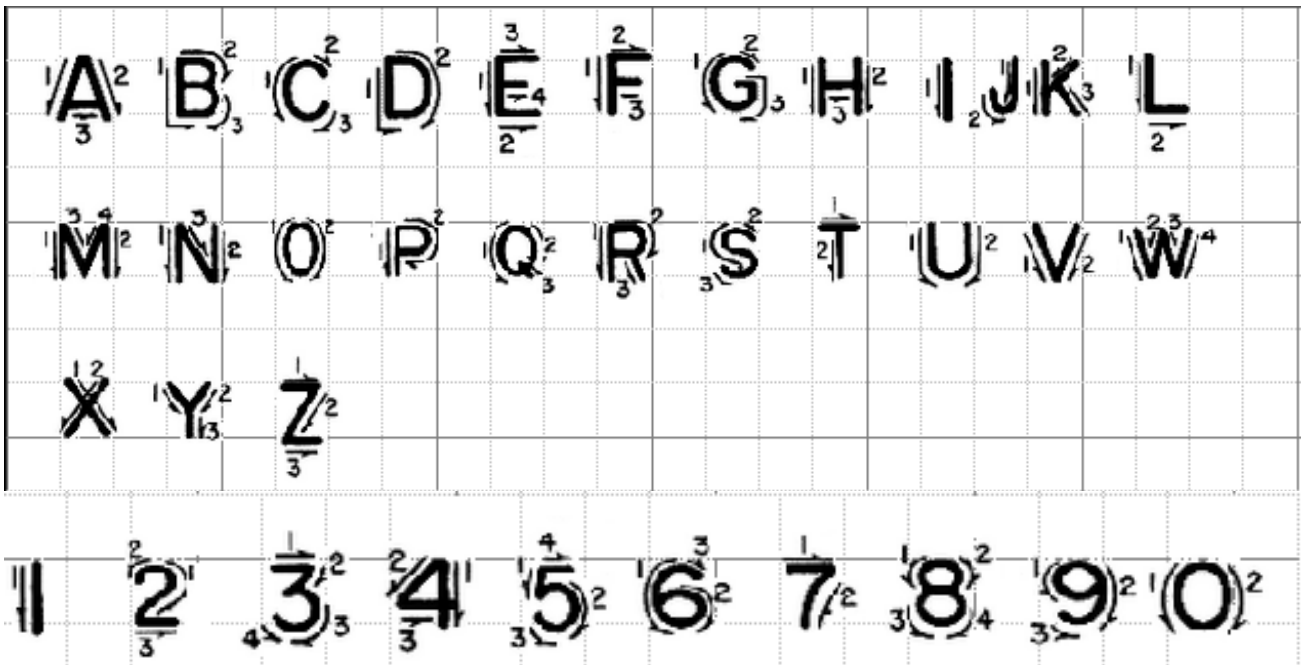
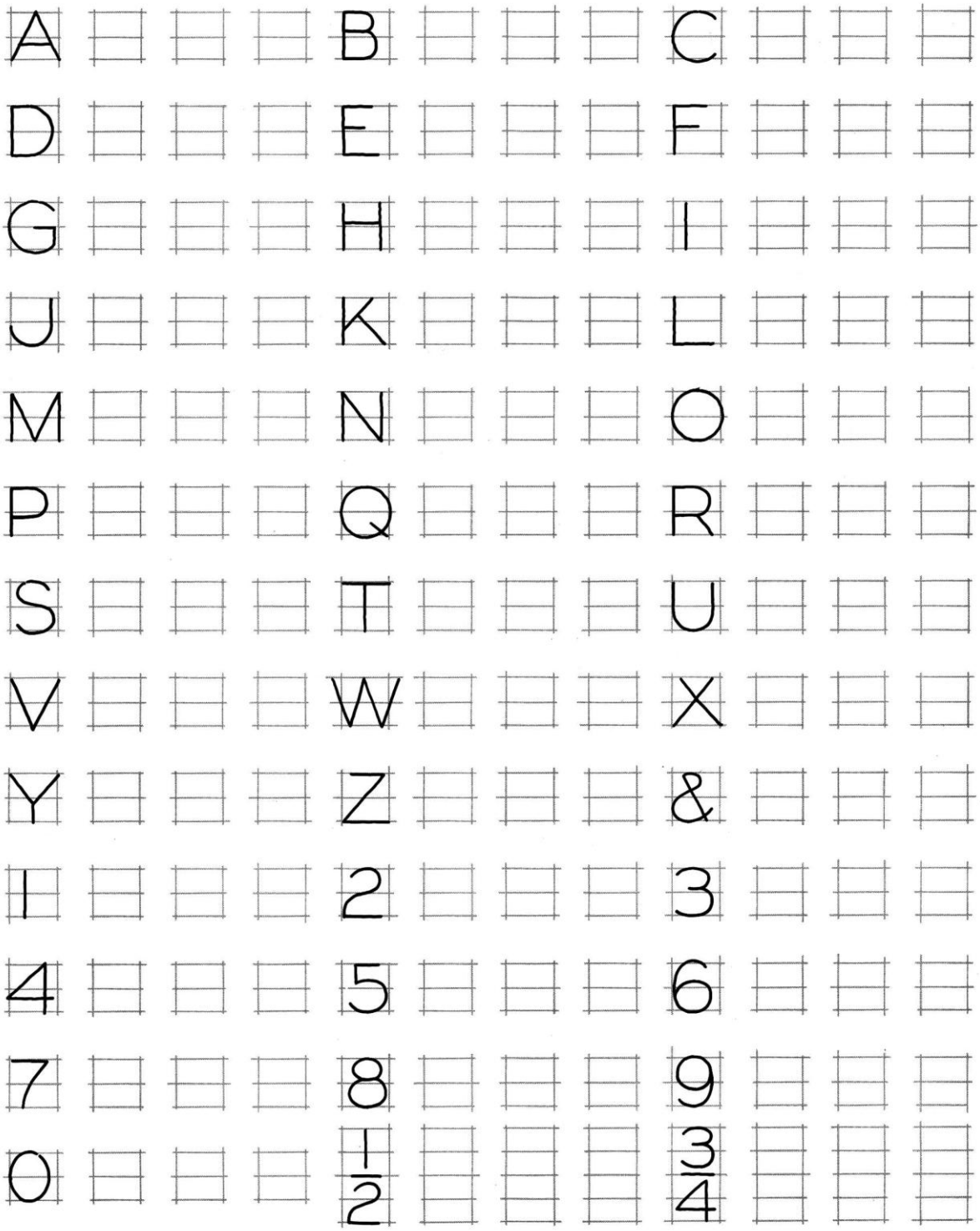
Topic One: Introduction to Engineering Graphics

Engineering Lettering



Engineering Lettering	NAME : _____ FILE No : _____	DATE: _____	1

Exercise (1): Using **HB** pencil with a slightly rounded point, Construct each letter in the spaces provided. Observe the form and proportion of each letter in order for you to improve your lettering when done smaller.



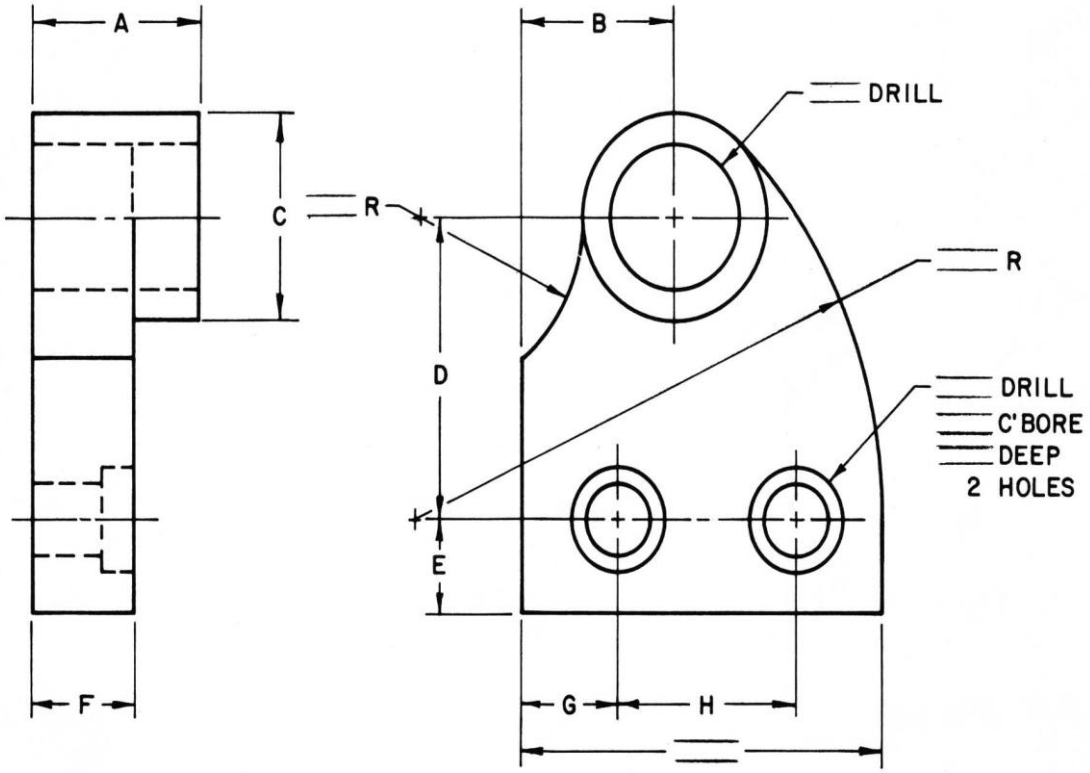
Engineering Lettering	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**2**

Scaling

Exercise (2): Use the **metric** scales and measure the dimension lines **A** through **H** in the two-view below. Letter the answer in the guidelines provided for the units indicated.

	A(mm)	B(mm)	C(mm)	D(cm)	E(cm)	F(cm)	G(m)	H(m)
1:1								
1:5								
1:200								
1:2								
1:50								
1:10								
1:500								
1:1000								

Scale the views below and supply the missing measurements in millimeters. Measure to the nearest whole millimeter.



Scaling	NAME : _____ FILE No : _____	DATE: _____	3

Types of lines

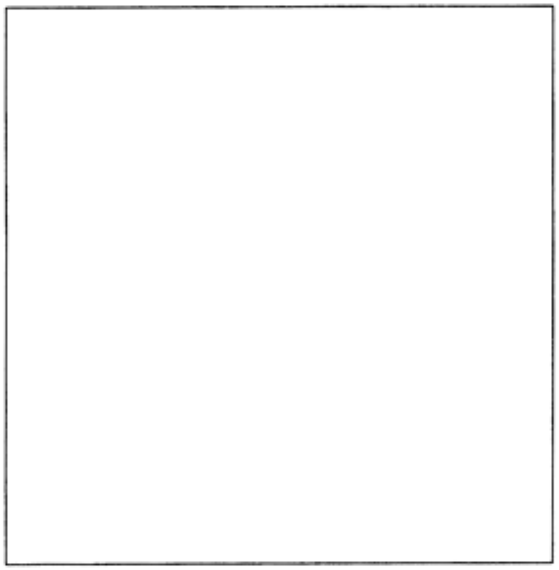
Exercise (3): a. Draw vertical lines 8mm apart in the following order : object(visible), Hidden and centre. Start at the left and repeat until the square is filled.

b. Draw horizontal lines 8mm apart as directed above. Start at top and repeat until the square is filled.

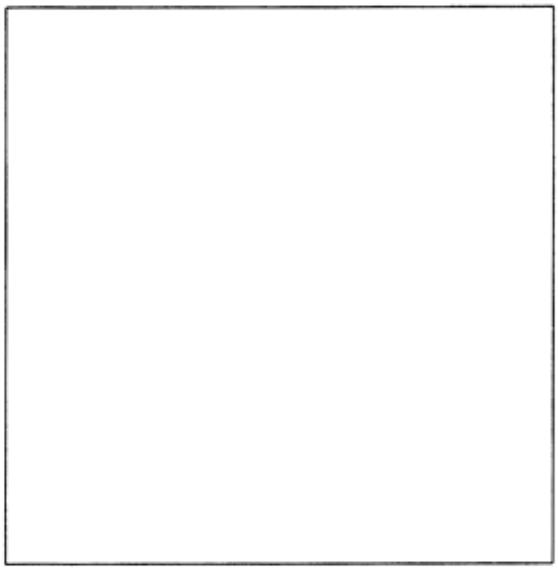
c. Divide the given square into 9 equal squares.

d. Divide the given square into 16 equal squares.

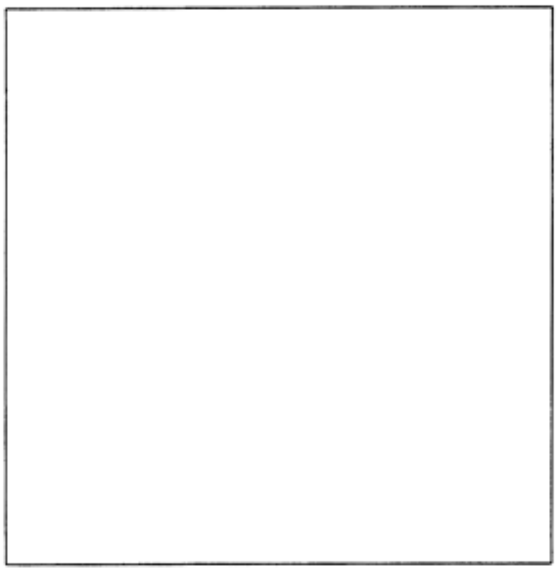
a



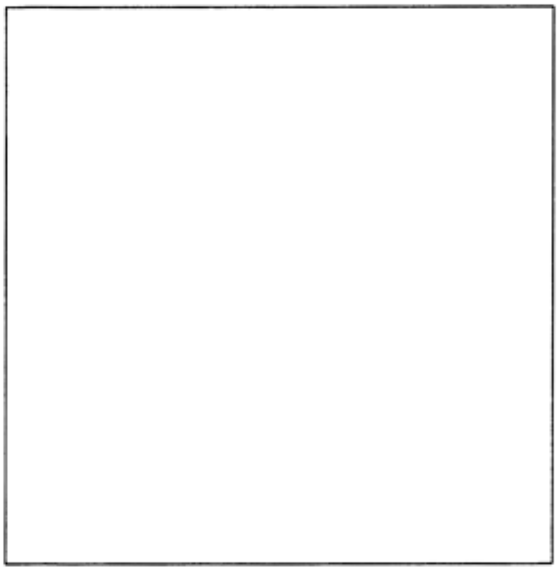
b



c



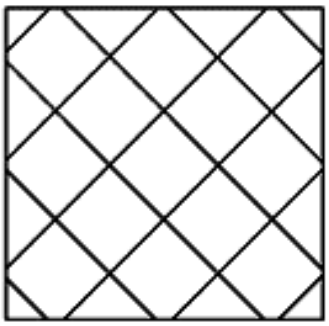
d



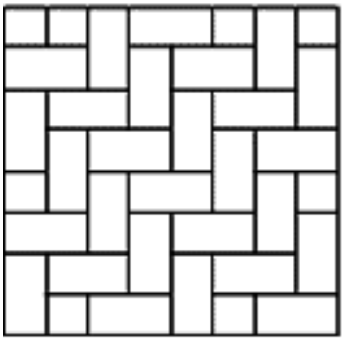
Types of lines	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**4**

Exercise (4): Draw a copy of the given paving patterns using the two given squares.
Scale 2:1

Diamond



Herringbone



(a) **(b)**

Drawing skills	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**5**

Topic Two: Basic Drawing Skills

Drawing Geometry

a. Constructing perpendicular bisector line and dividing a given line into (N) equal number of parts.

b. Dividing an angle.

c. Making an offset at distance (**R)**.

d. A line tangent to a circle and passing through a given point **(P)**.

e. A line tangent to two circles or arcs.

f. An arc **(R)** that is tangent to two given lines.

g. An arc **(R)** that is passing through two points.

h. An arc **(R)** that is passing through three points .

i. An arc **(R)** that is tangent to a line and passing through a point.

j. An arc **(R)** that is tangent to an arc and line.

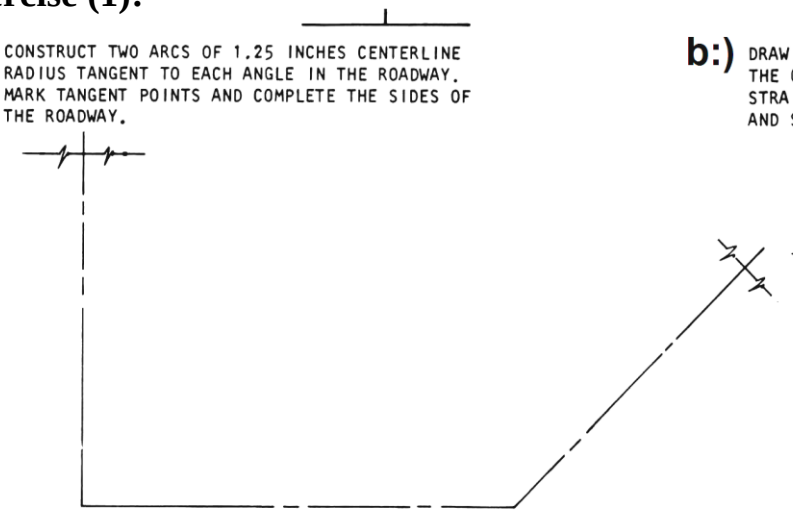
k. An arc **(R)** that is tangent to an arc and passing through a point.

l. An arc **(R)** that is tangent to two arcs(concave and convex).

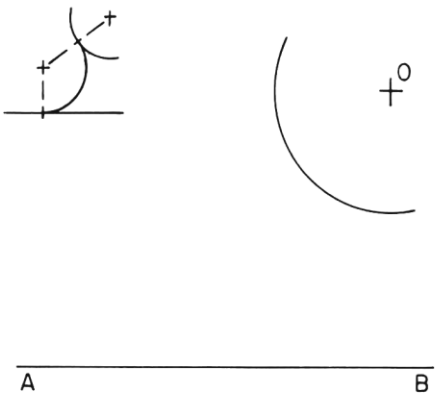
m. Constructing a regular Polygon.

Exercise (1):

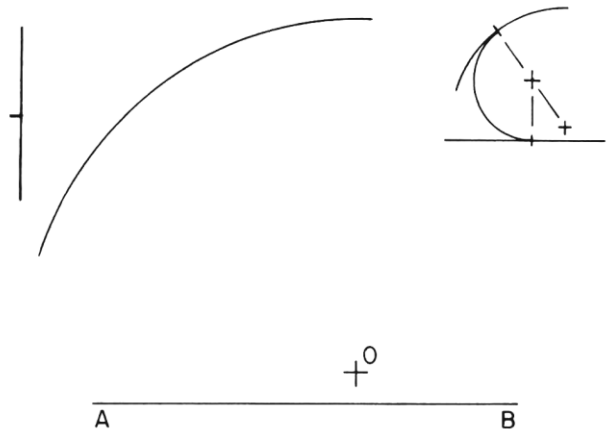
a:) CONSTRUCT TWO ARCS OF 1.25 INCHES CENTERLINE RADIUS TANGENT TO EACH ANGLE IN THE ROADWAY. MARK TANGENT POINTS AND COMPLETE THE SIDES OF THE ROADWAY.



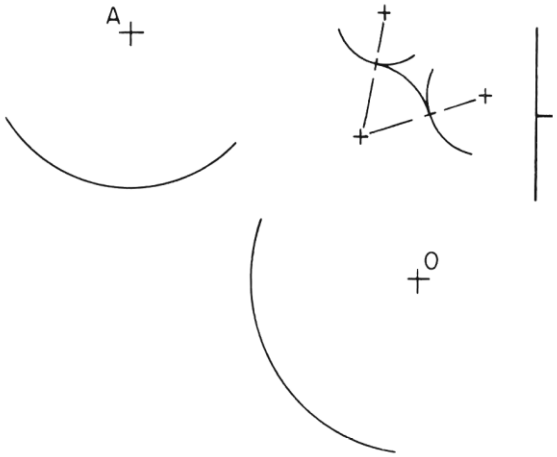
b:) DRAW AN ARC OF 0.75 INCHES RADIUS TANGENT TO THE GIVEN ARC WITH ITS CENTER AT O AND THE STRAIGHT LINE AB. MARK POINTS OF TANGENCY AND SHOW CONSTRUCTION.



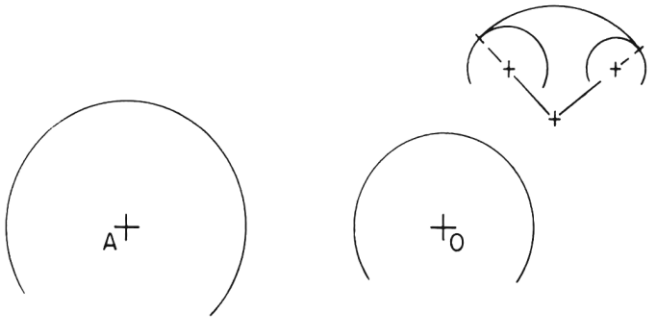
c:) DRAW AN ARC OF 1.0 INCHES (25 MM) RADIUS TANGENT TO THE GIVEN ARC WITH ITS CENTER AT O AND THE LINE AB. MARK TANGENT POINTS AND SHOW CONSTRUCTION.



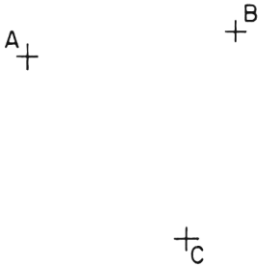
d:) DRAW A CIRCULAR ARC OF 32 MM RADIUS TANGENT TO THE TWO GIVEN ARCS WITH CENTERS AT A AND O. MARK TANGENT POINTS AND SHOW CONSTRUCTION.



e:) DRAW AN ARC OF 1.9 INCHES RADIUS THAT IS TANGENT TO THE GIVEN ARCS WITH CENTERS AT A AND O. MARK TANGENT POINTS AND SHOW CONSTRUCTION.

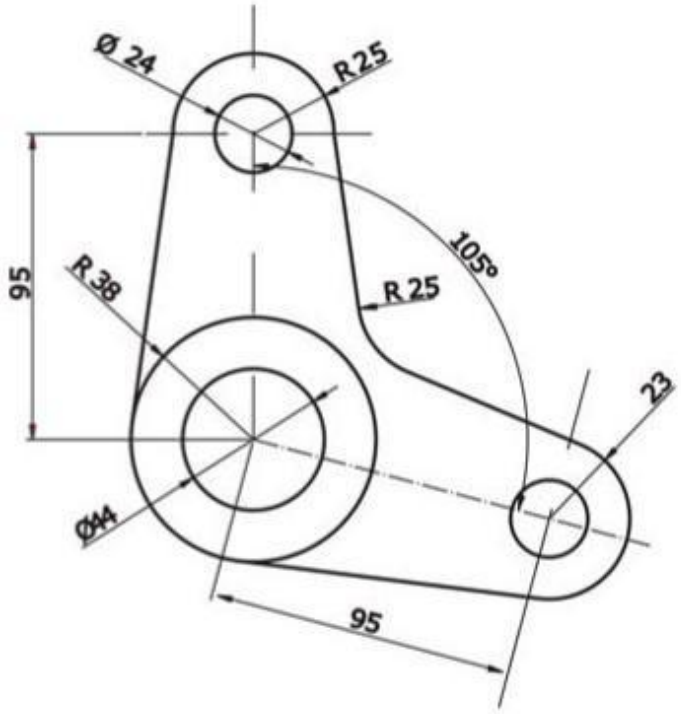


f:) CONSTRUCT A CIRCLE THAT WILL PASS THROUGH POINTS A, B AND C. SHOW CONSTRUCTION.

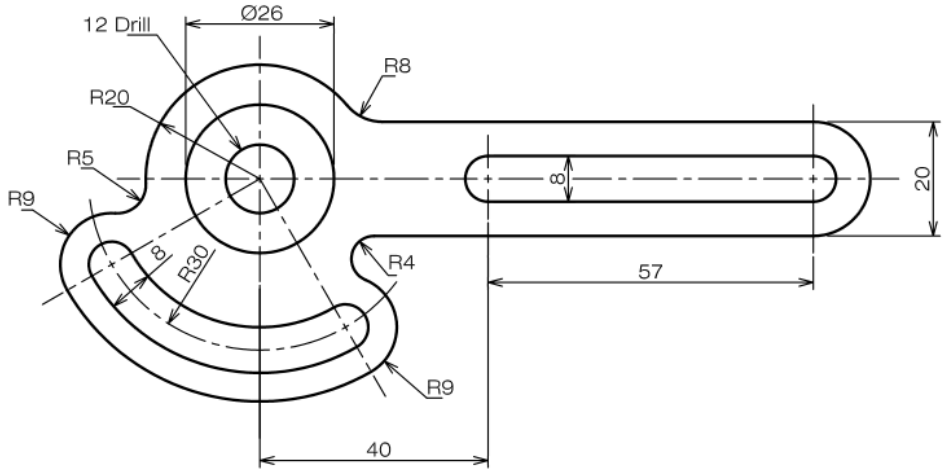


Drawing Geometry **Tangency**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**6**

Exercise (2): Draw the figures shown below to full **scale (1:1)** ,construction lines should be light and thin **2H** and outlines in **HB**. Mark all tangent points **T** and all centers by **C. Do not erase the construction lines.**



(a)

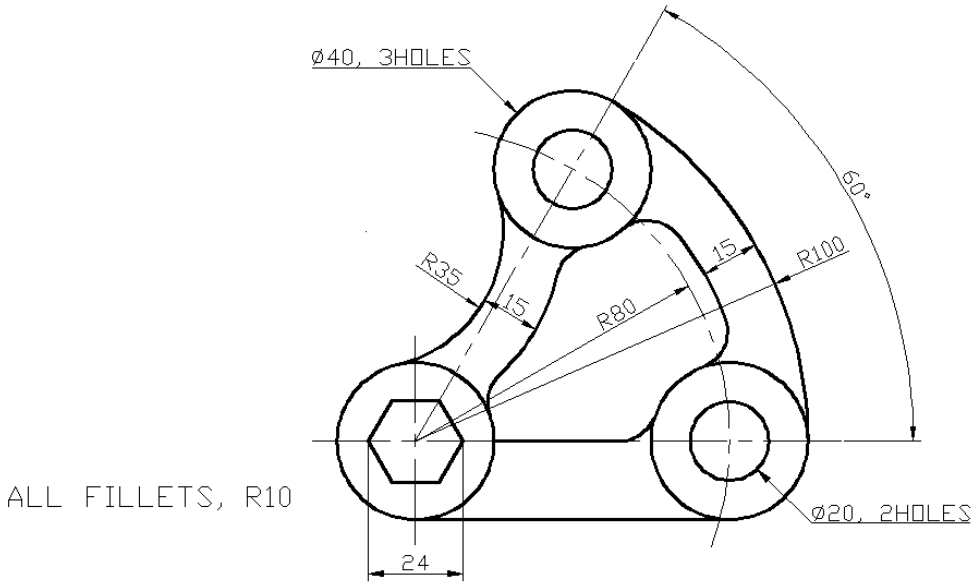


(b)

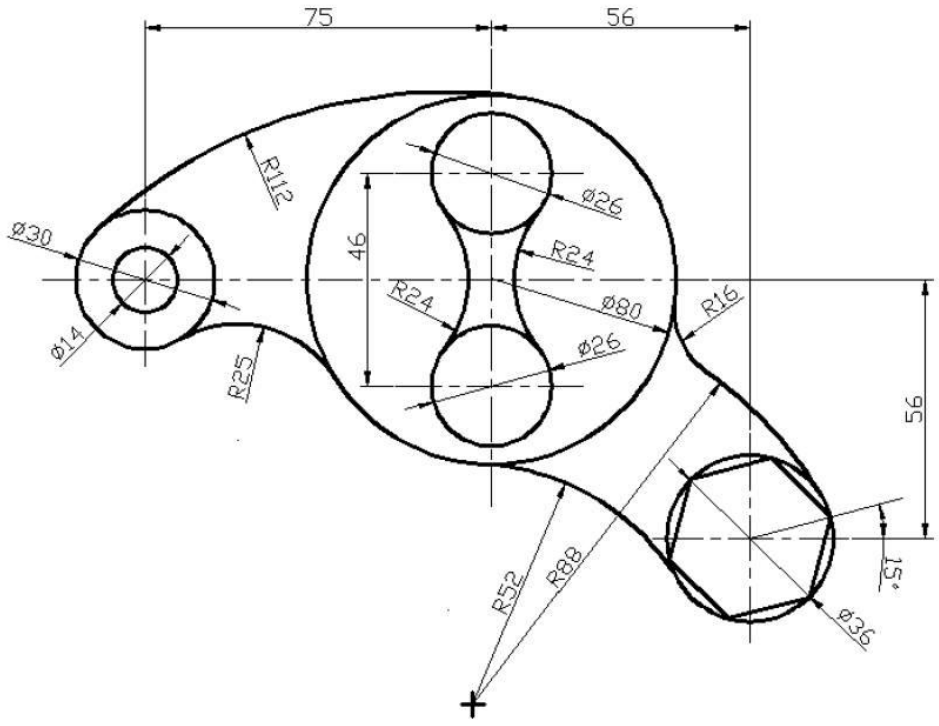
Drawing Geometry **Tangency**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**8**

Exercise (3): *Draw the following views. Add center lines and center points. (Dimensions are millimeters).*

Use scale (1:1)



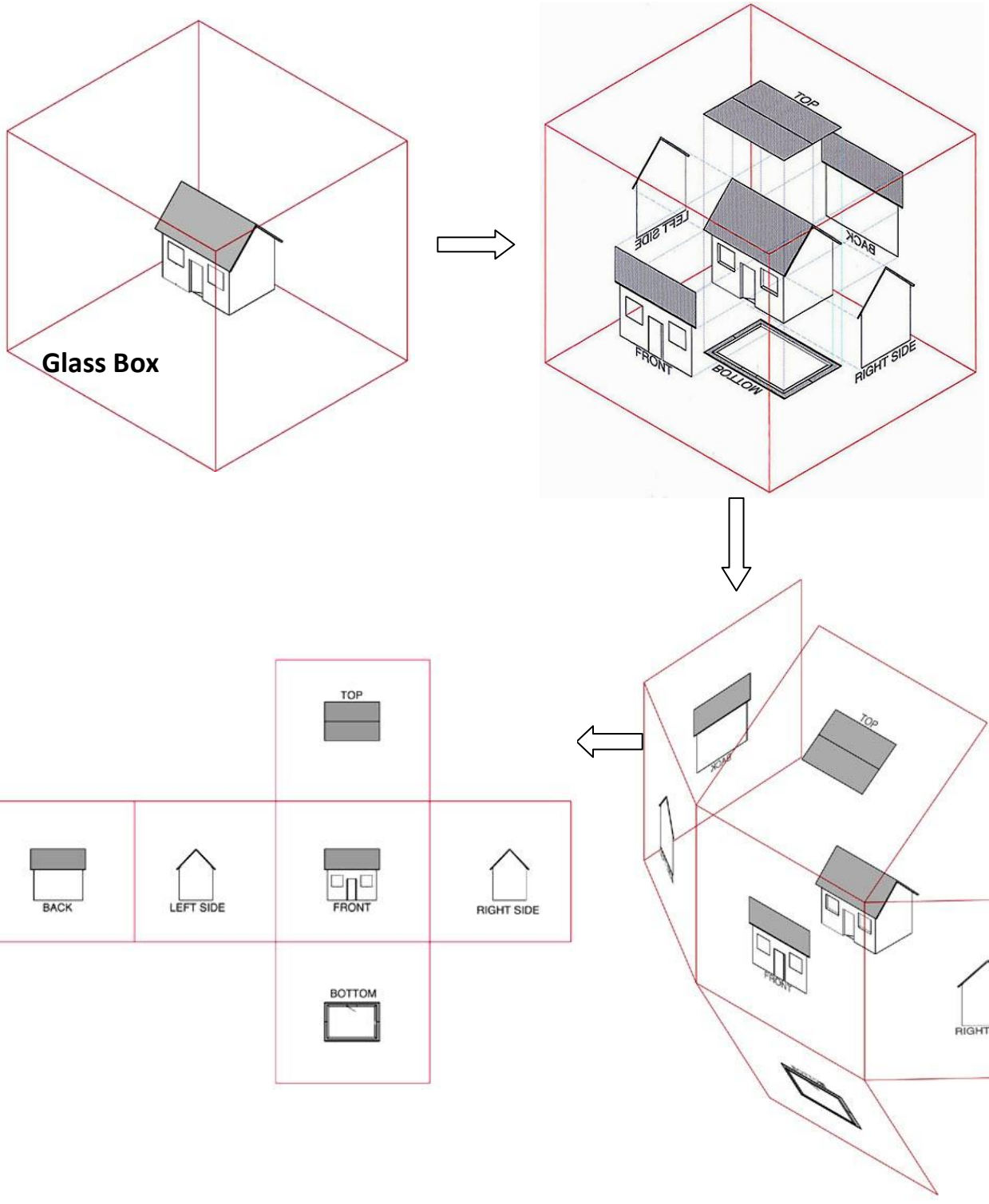
(a)



(b)

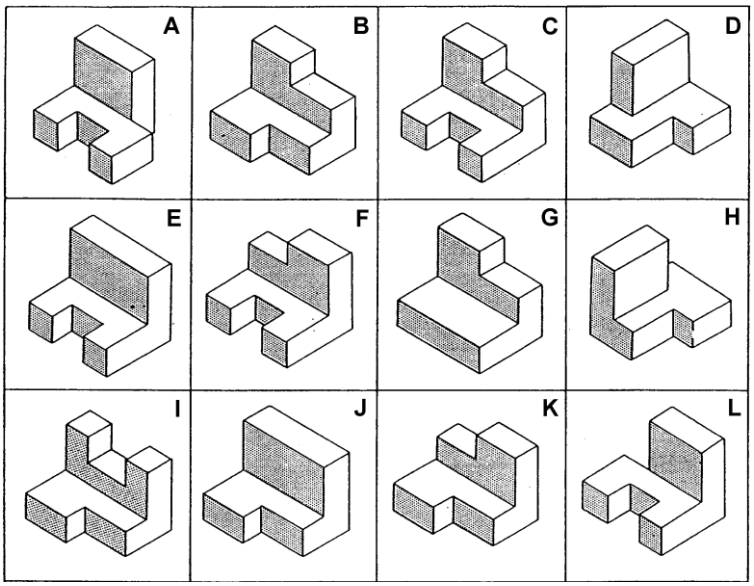
Drawing Geometry **Tangency**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**9**

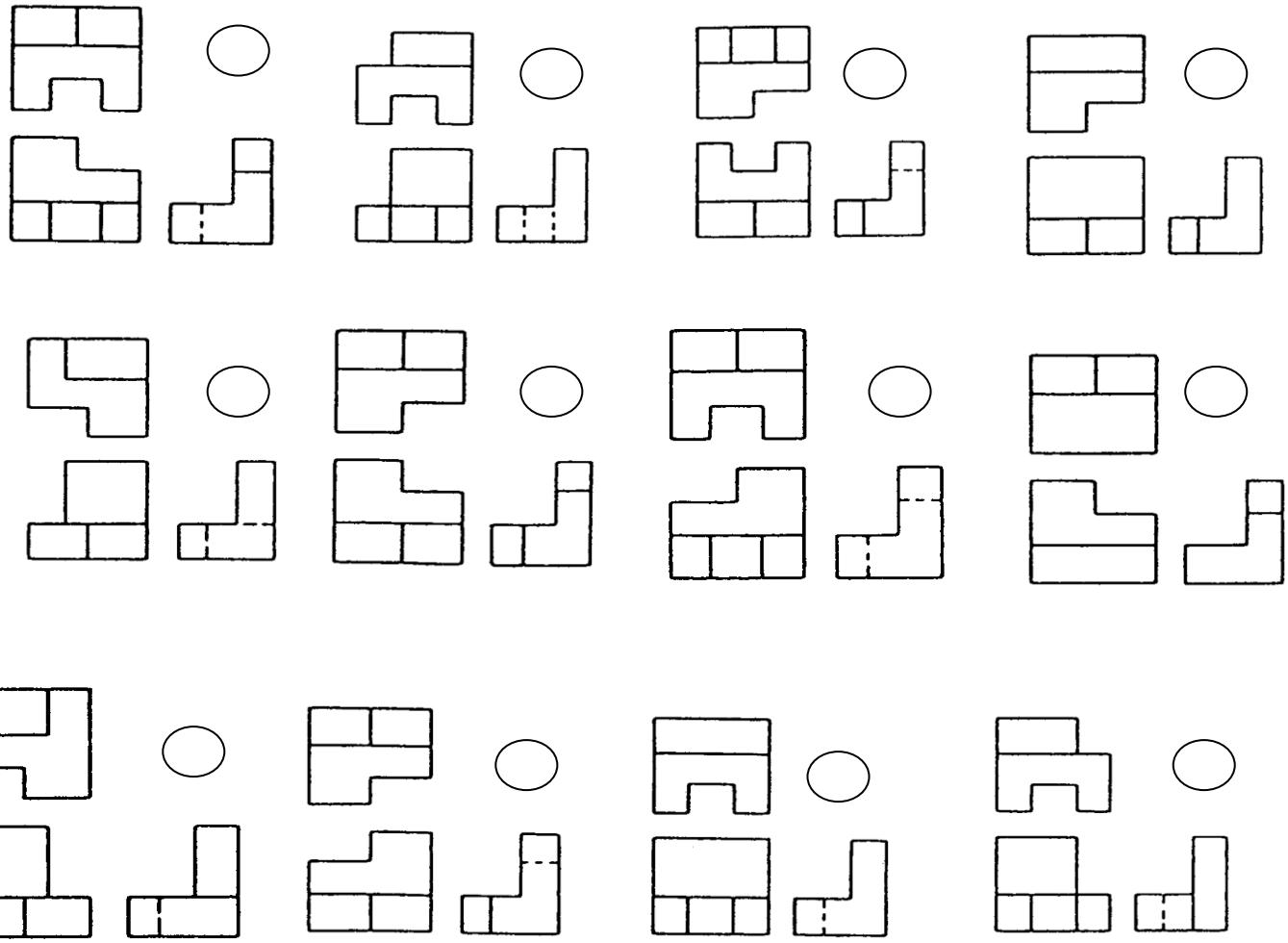
Topic Three : Multi-view Orthographic Projection



Orthographic Projection Sketching part	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**10**

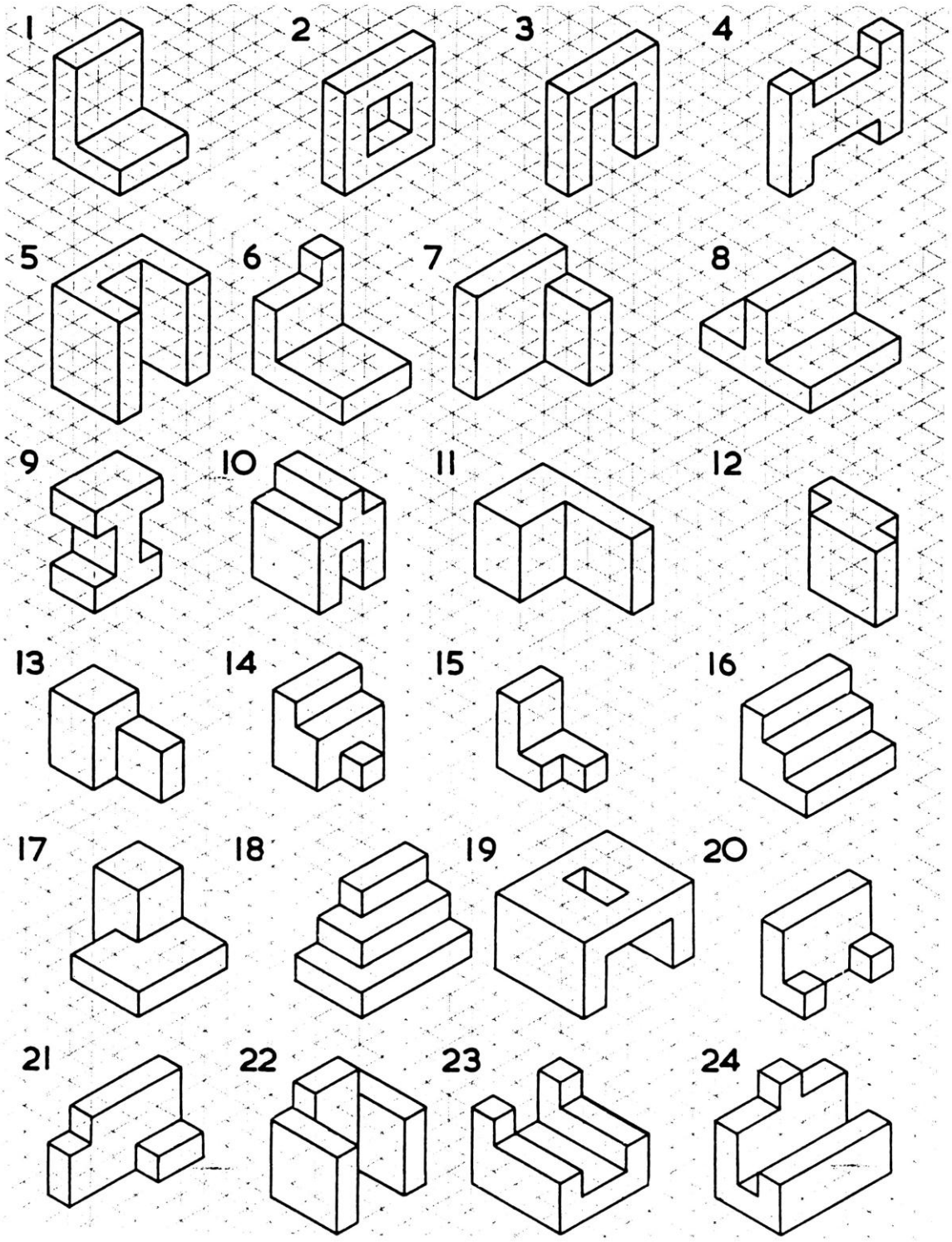
Exercise (1): Match between the solid and its orthographic views





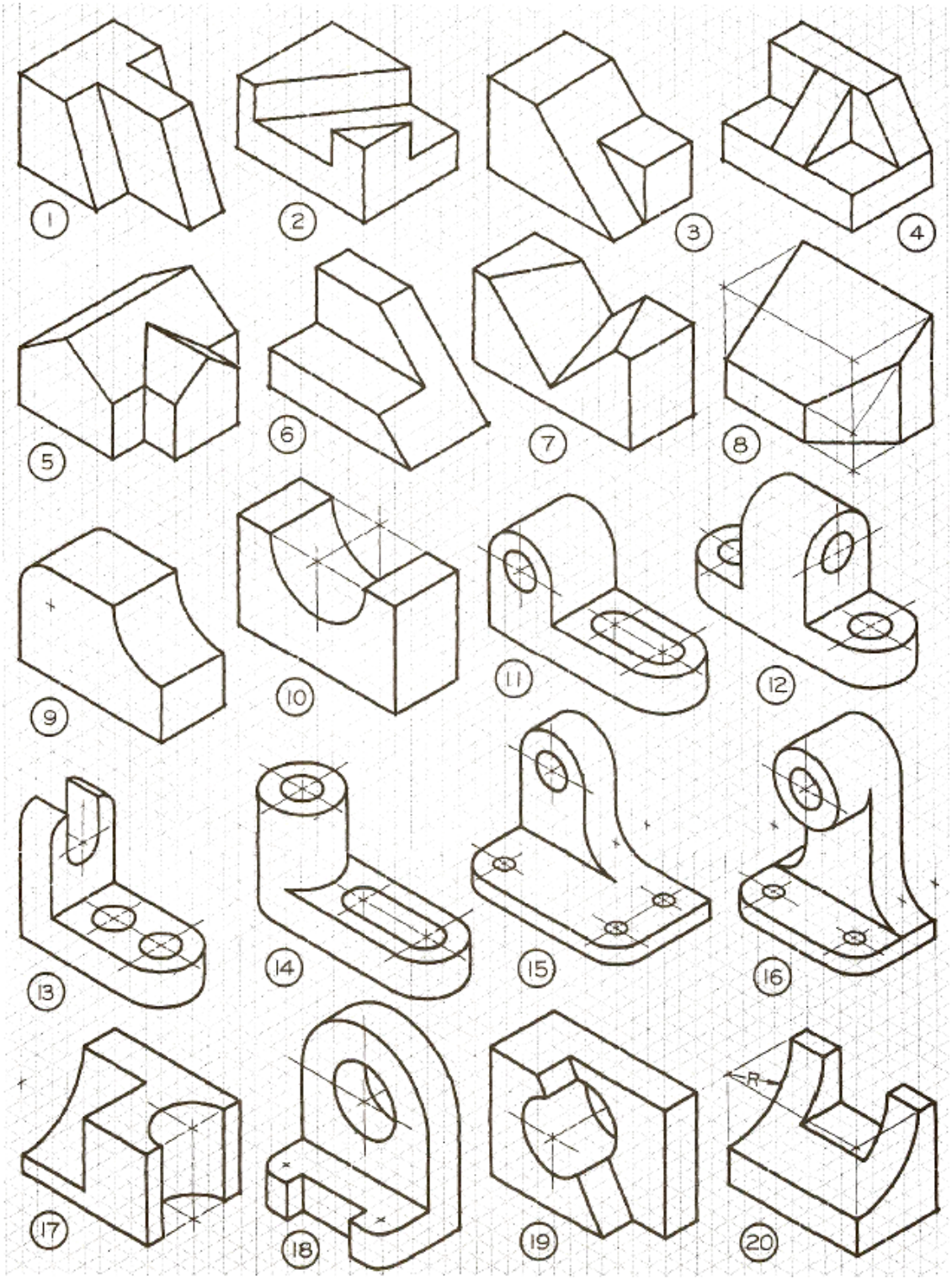
Orthographic Projection Sketching part	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**11**

Exercise (2): Sketch using freehand, the orthographic projections for all the solids



Orthographic Projection Sketching part	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**12**

Exercise (3): Sketch using freehand, the orthographic projections for all the solids



Orthographic Projection Sketching part	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**13**

Orthographic Projection
Sketching part

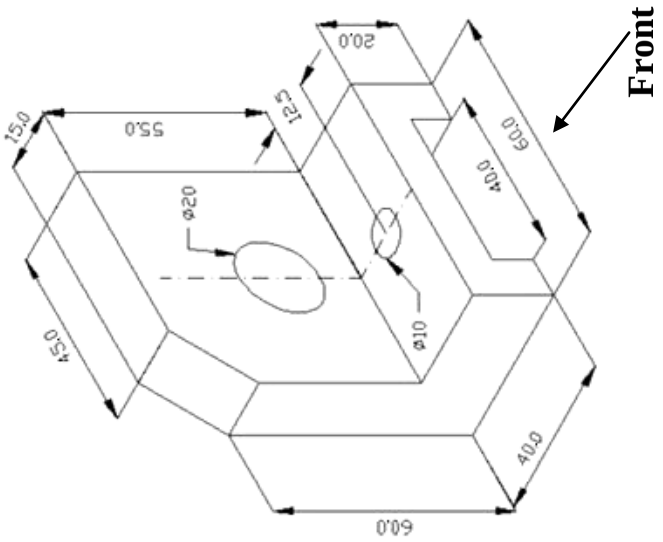
NAME: _____

FILE No : _____

DATE: _____

14

Exercise (4): Locate the missing lines and complete the given views using instruments. Refer to the pictorials in completing these problems



Exercise (5): For the following solid; draw Top, Left and front view.

Orthographic Projection Instrumentation	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**15**

Orthographic Projection
Instrumentation

NAME : _____

FILE No : _____

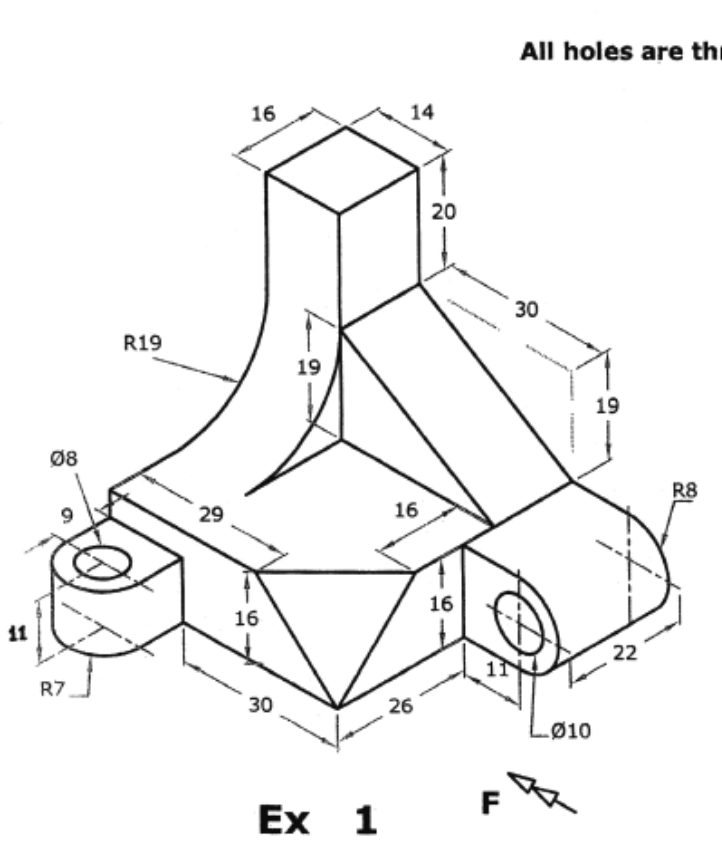
DATE: _____

Exercise (6): For the following solid; draw Top, right and front view.

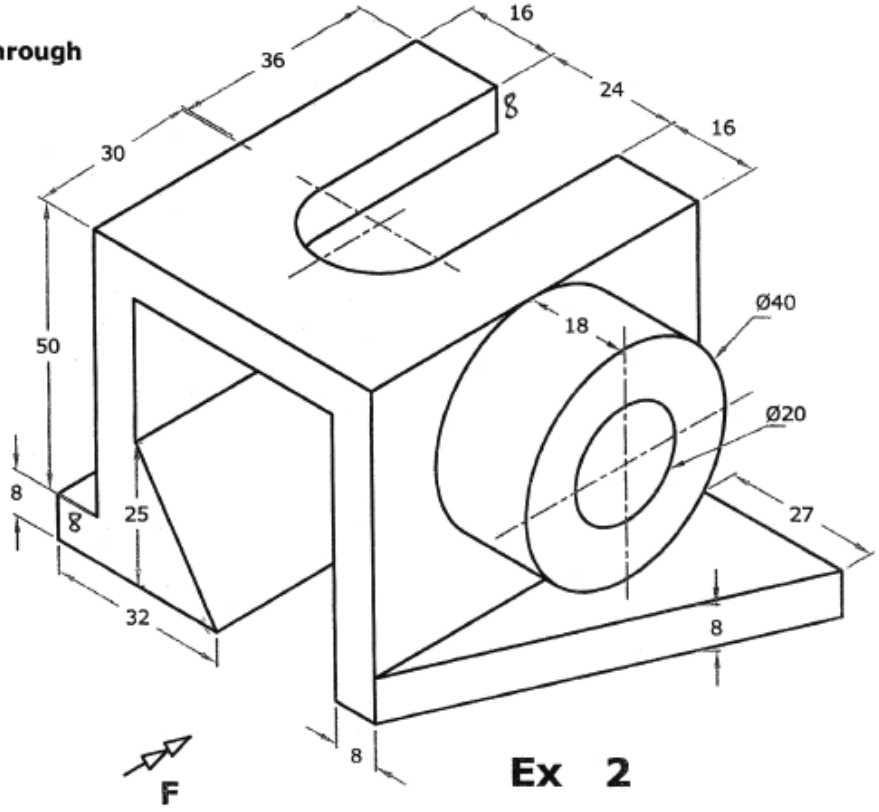
Draw FRONT VIEW, TOP VIEW & SIDE VIEWS of Ex 1 & Ex 2 **SCALE 1:1**

Draw each one on its separate attached paper

All holes are through



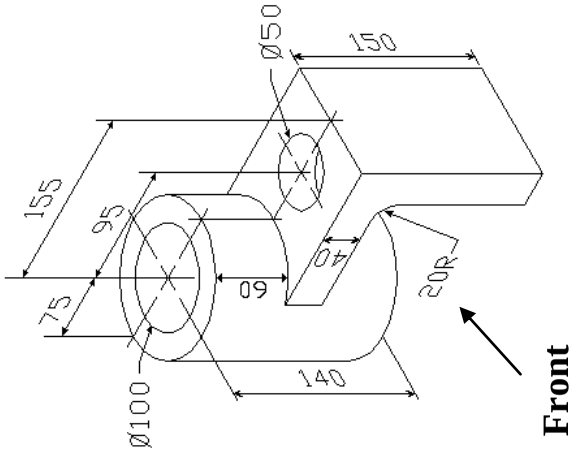
Ex 1



Ex 2

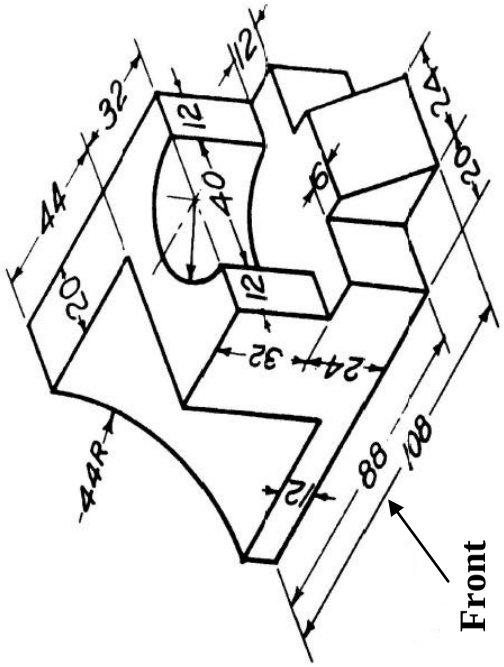
Orthographic Projection Instrumentation	NAME : ____ FILE No : ____	DATE: ____	17

Exercise (7): For the following solid; draw Top, Left and front view.



Exercise (8): For the following solid; draw Top, right and front view

Orthographic Projection Instrumentation	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**18**



Exercise (9): For the following solid; draw Top, right and front view

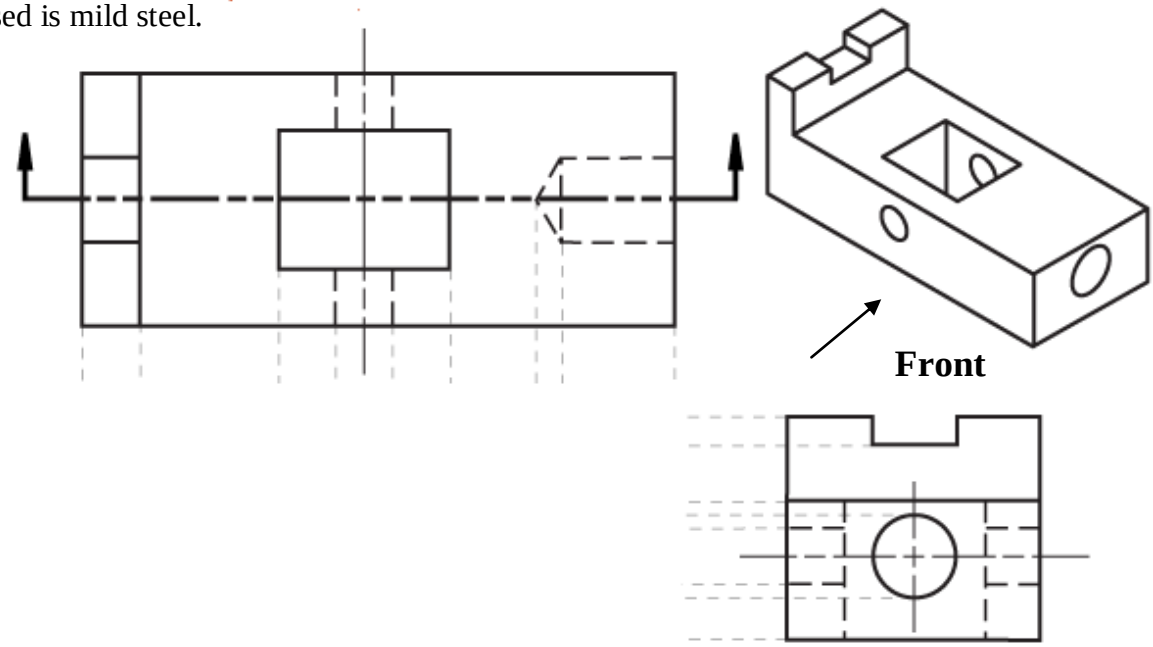
Orthographic Projection Instrumentation	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**19**

Orthographic Projection Instrumentation	NAME : ____ FILE No : ____	DATE: ____	20

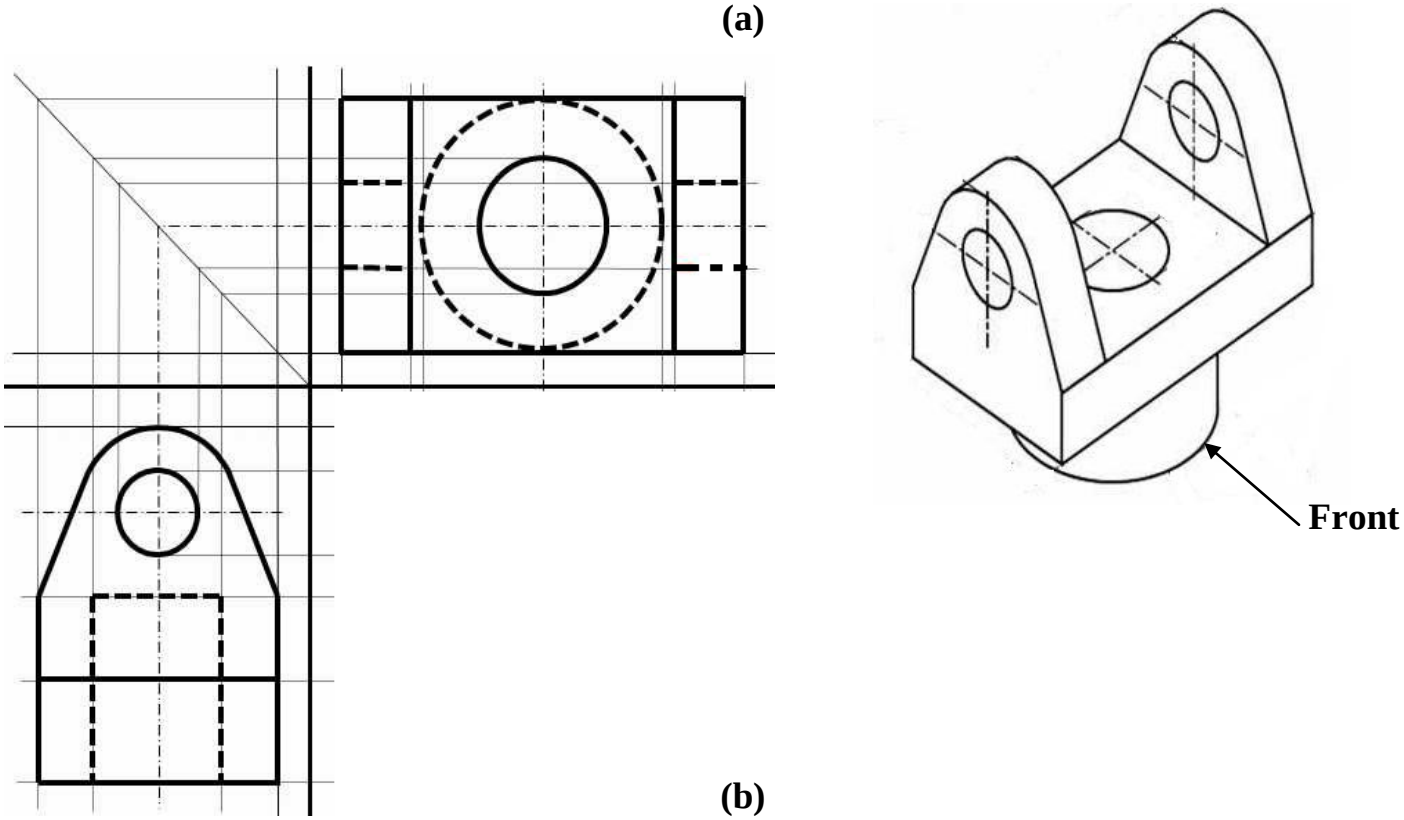
Exercise (10): For the following solid; draw Top, right and front view

Topic Four : Engineering Sections and Hatching

Exercise (1): Given the top and right side views, sketch the front view as a full section. The material used is mild steel.



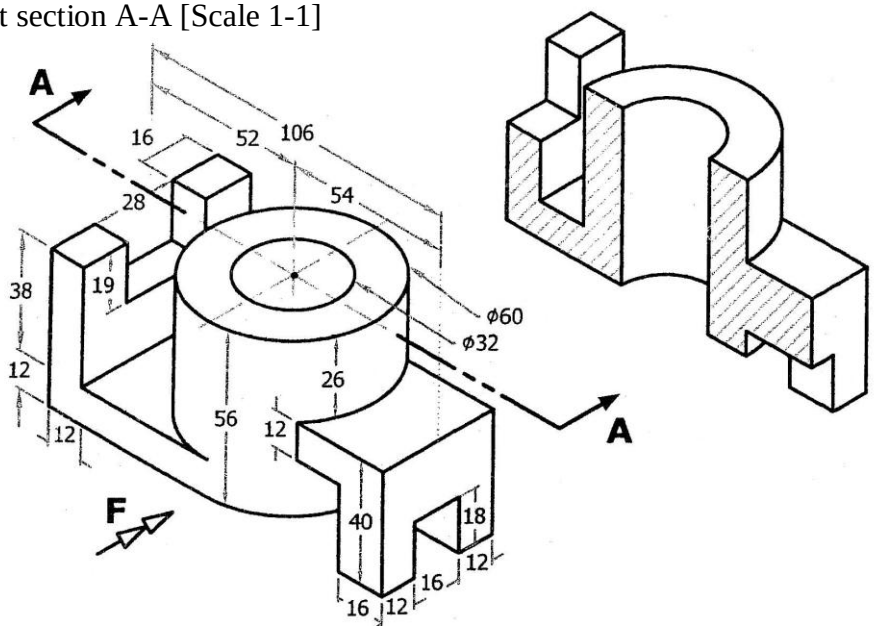
(a)



(b)

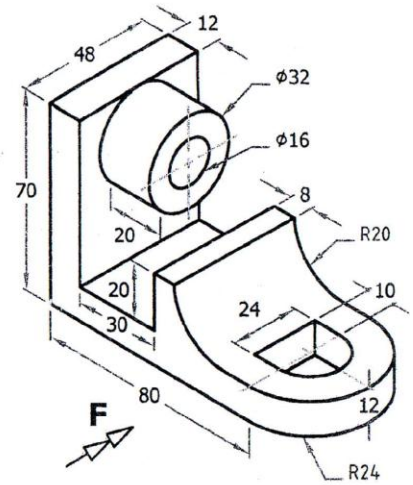
Sectional Views	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**21**

Exercise (2) : Draw below full front section A-A [Scale 1-1]



Sectional Views	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**22**

Exercise (3)



DRAW AT SCALE 1:1
- FULL FRONT SECTION
- TOP VIEW
- RIGHT SIDE VIEW

Sectional Views

NAME: ____

FILE No : ____

DATE: ____

23

Sectional Views

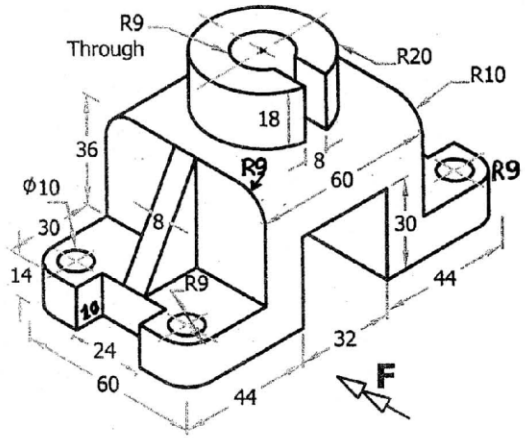
NAME : ____

FILE No : ____

DATE: ____

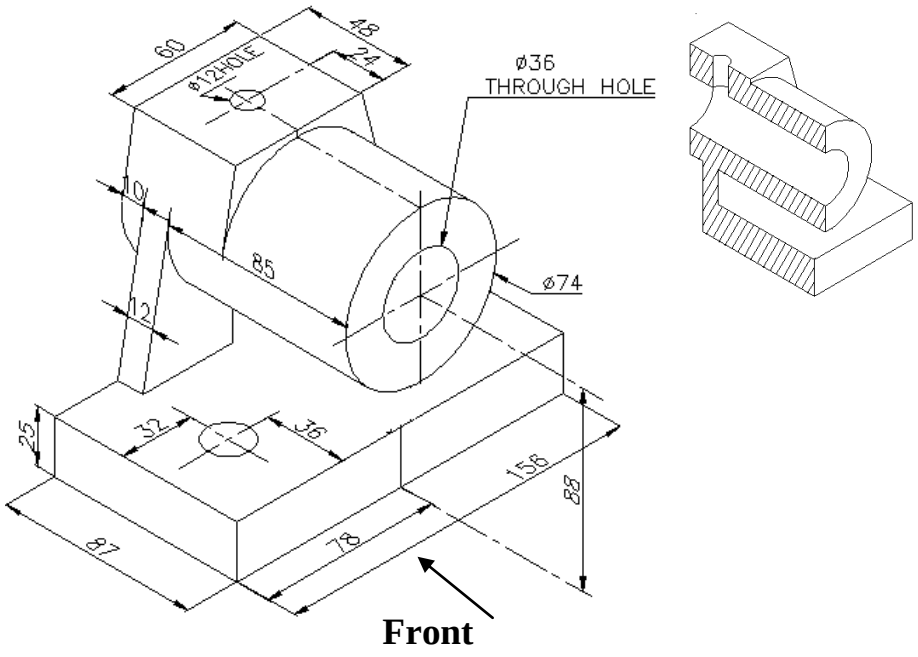
24

Exercise (4)



DRAW SCALE 1:1
- FRONT FULL SECTION
- TOP VIEW
- LEFT SIDE VIEW

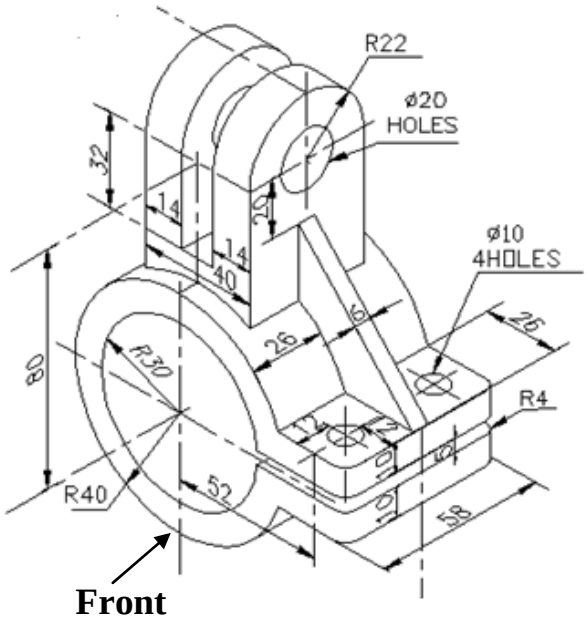
Exercise (5): For the following solid; draw **Top** view, **Front** View and **full sectional Left** view.

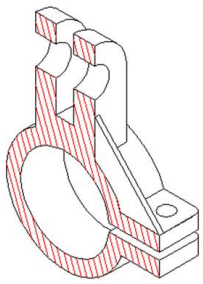


Sectional Views	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**25**

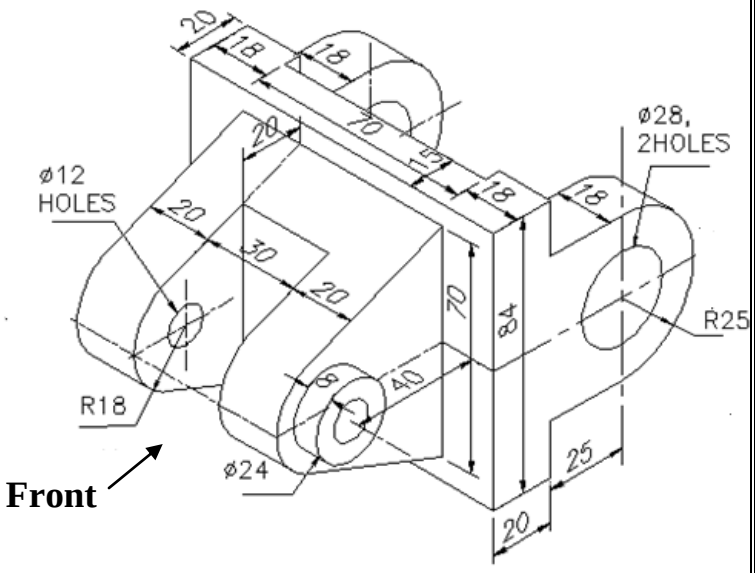
Exercise (6): For the following solid; draw **Top** view, **Right** View and **full sectional front** view

.



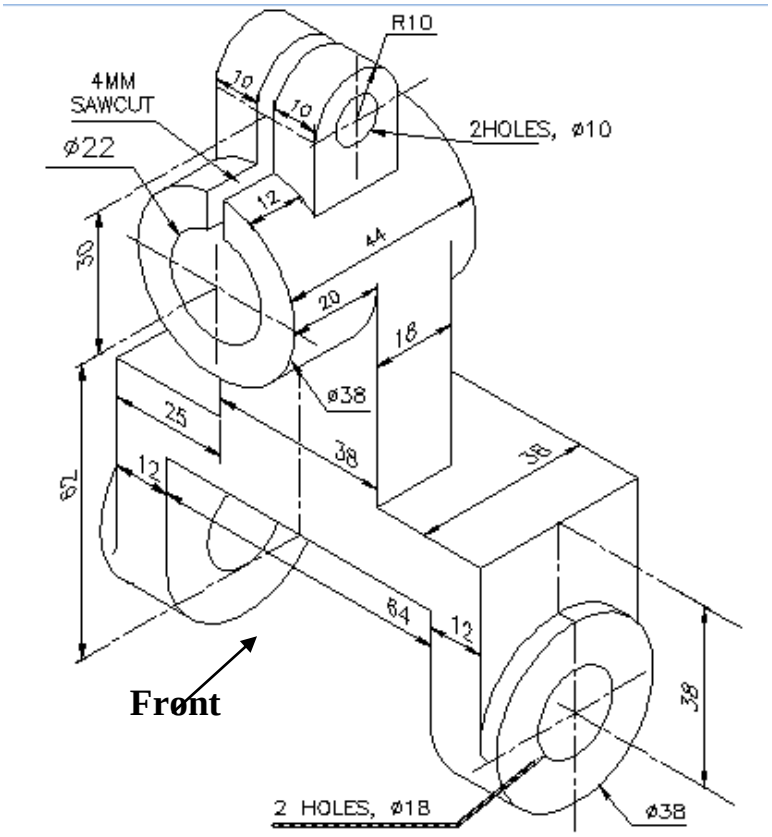


Exercise (7): For the following solid; draw **Front** view, **Right** View and **full sectional Top** view



Sectional Views	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**27**

Exercise (8): For the following solid; draw **Top** view, **Front** View and **full sectional right** view.

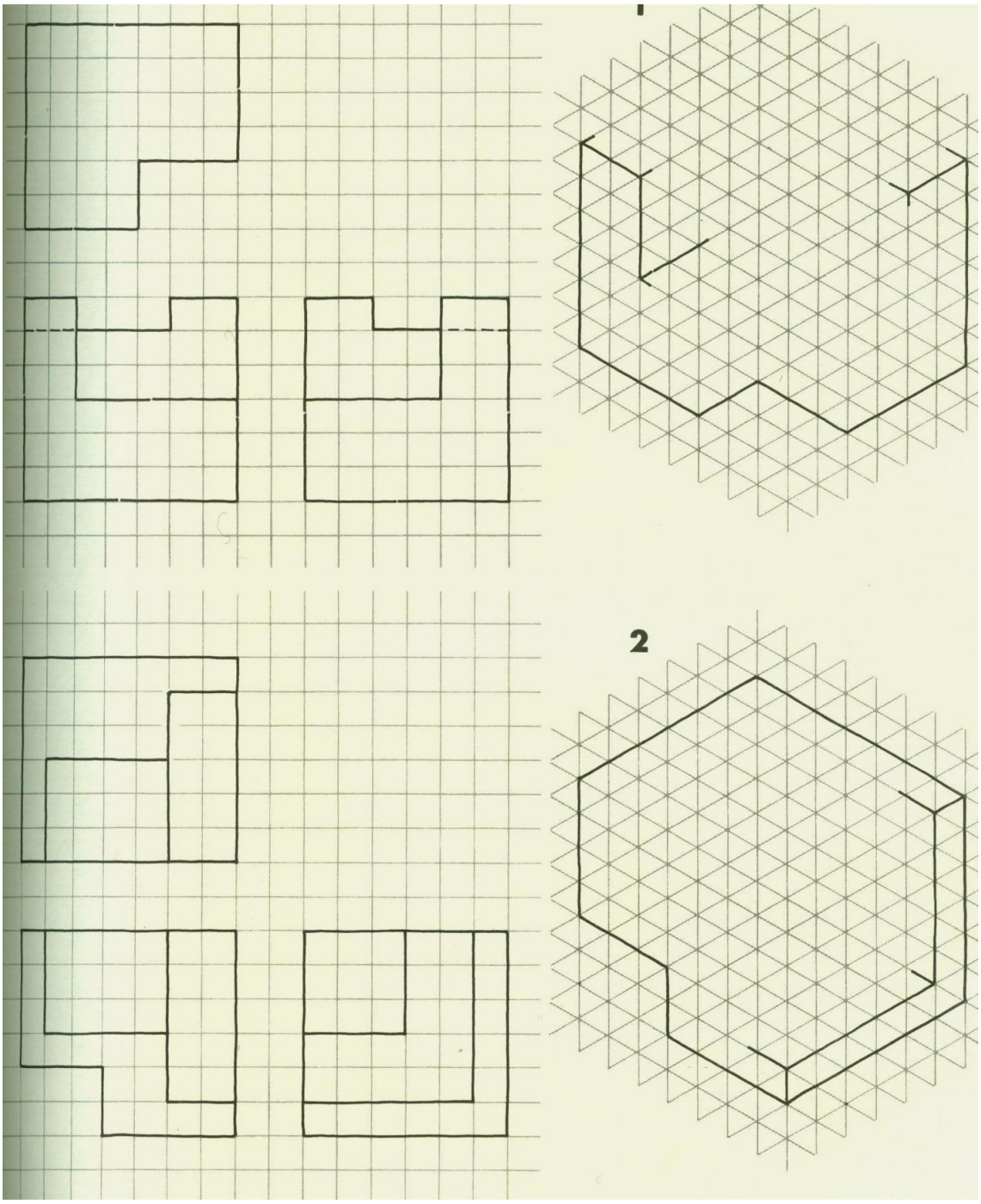


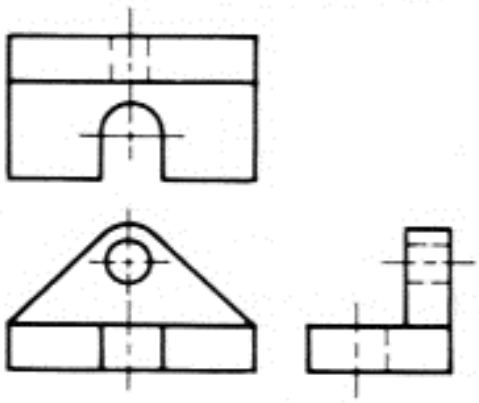
Sectional Views	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**28**

Topic Five: Isometric and Oblique Drawings

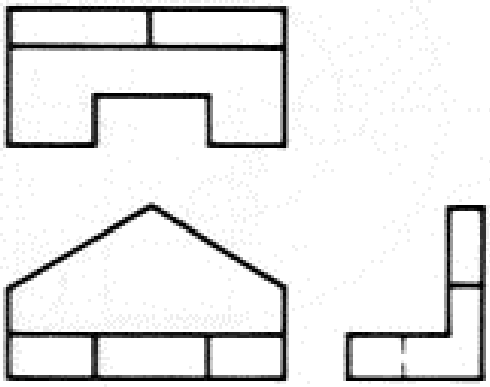
Isometric Drawings

Exercise (1): Using freehand sketch, make an Isometric drawing for the following views.

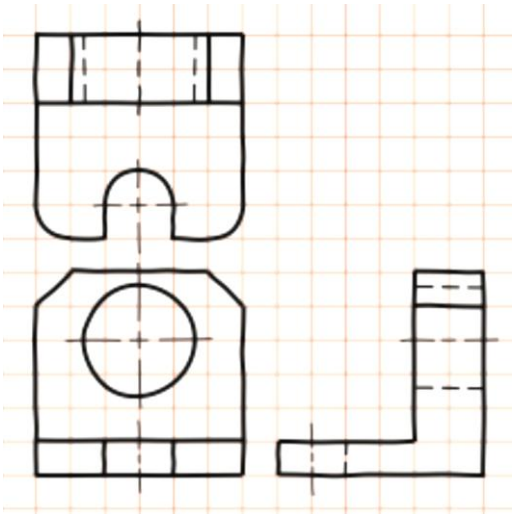




(c)



(d)

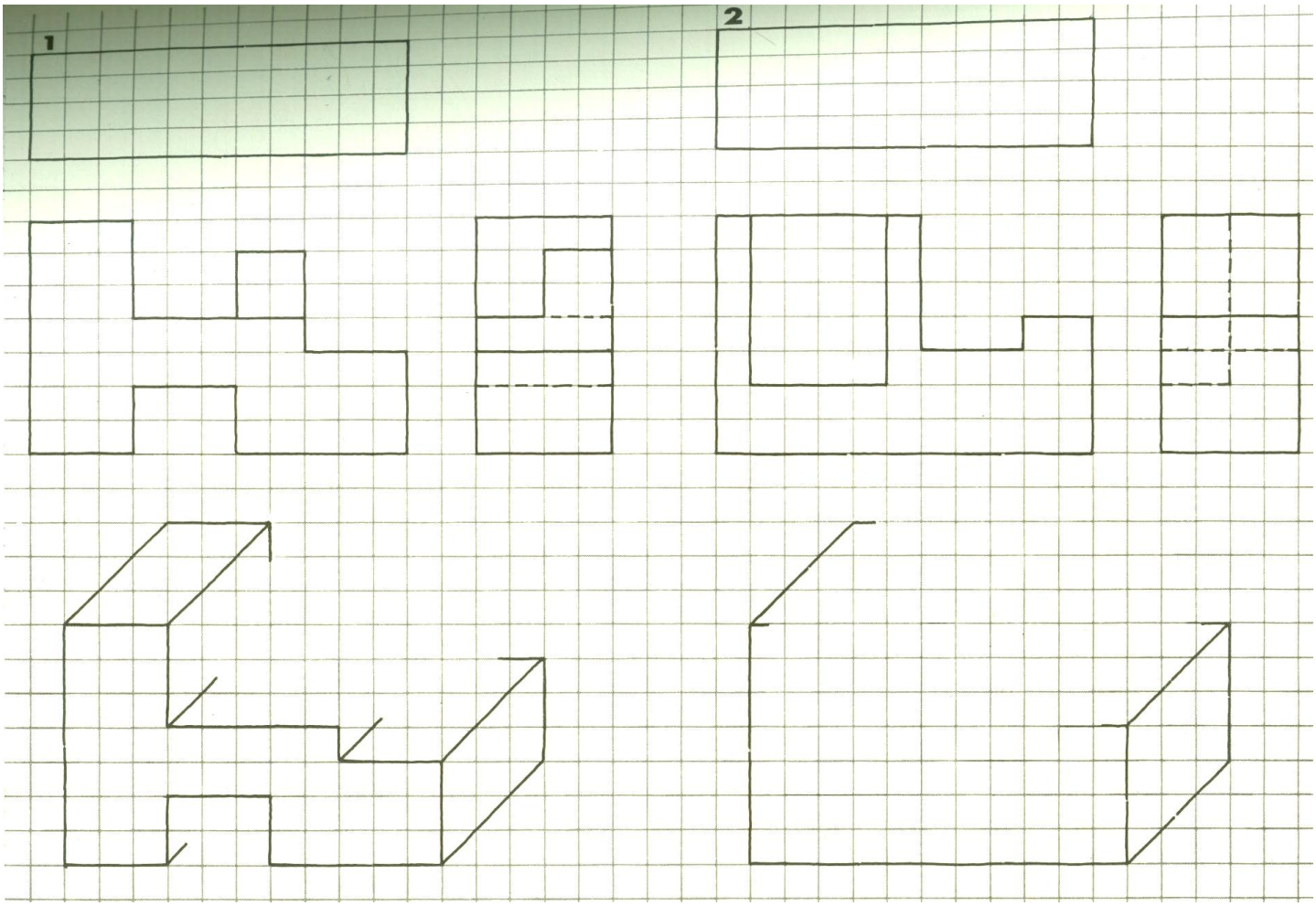


(e)

Isometric Drawings	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**30**

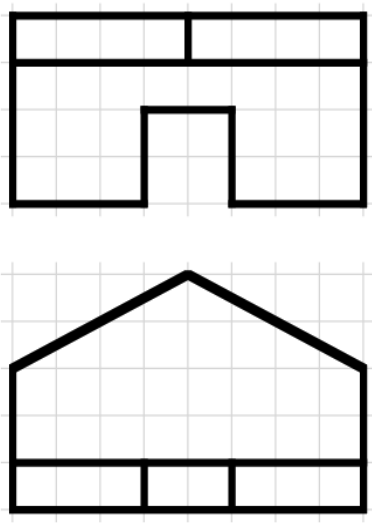
Oblique Drawings

Exercise (2): Using freehand sketch, Make an oblique drawings for the following views.

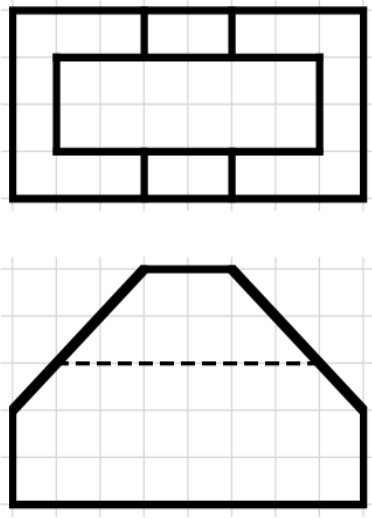


Oblique Drawings	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**31**

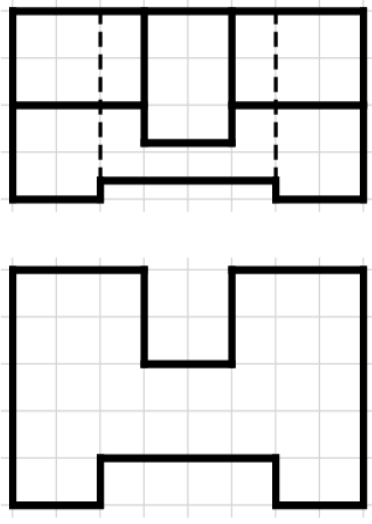
a:)



b:)

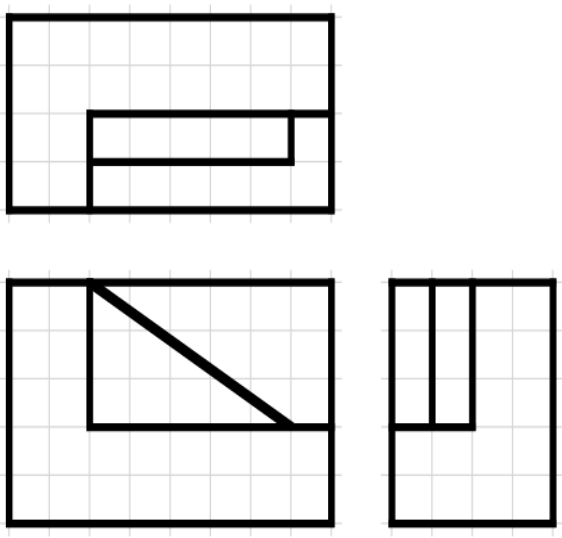


c:)

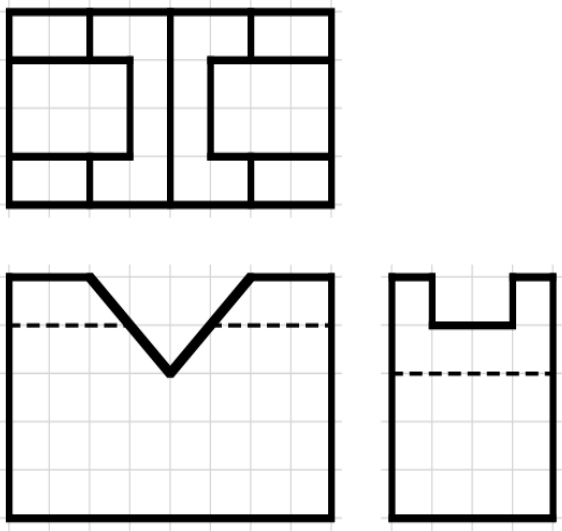


Oblique Drawings	NAME : _____ FILE No : _____	DATE: _____	32

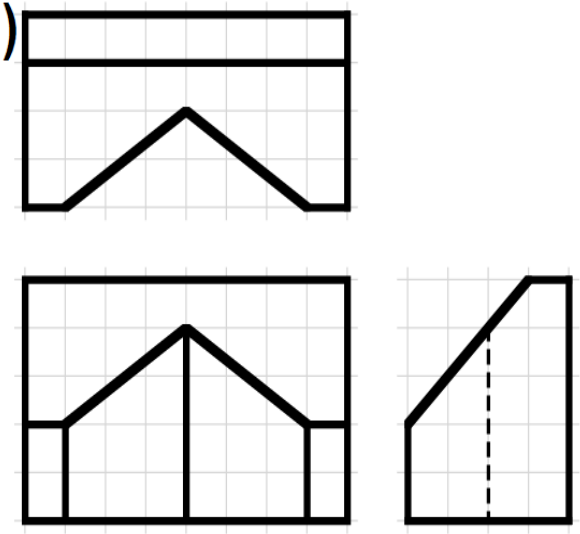
d:)



e:)



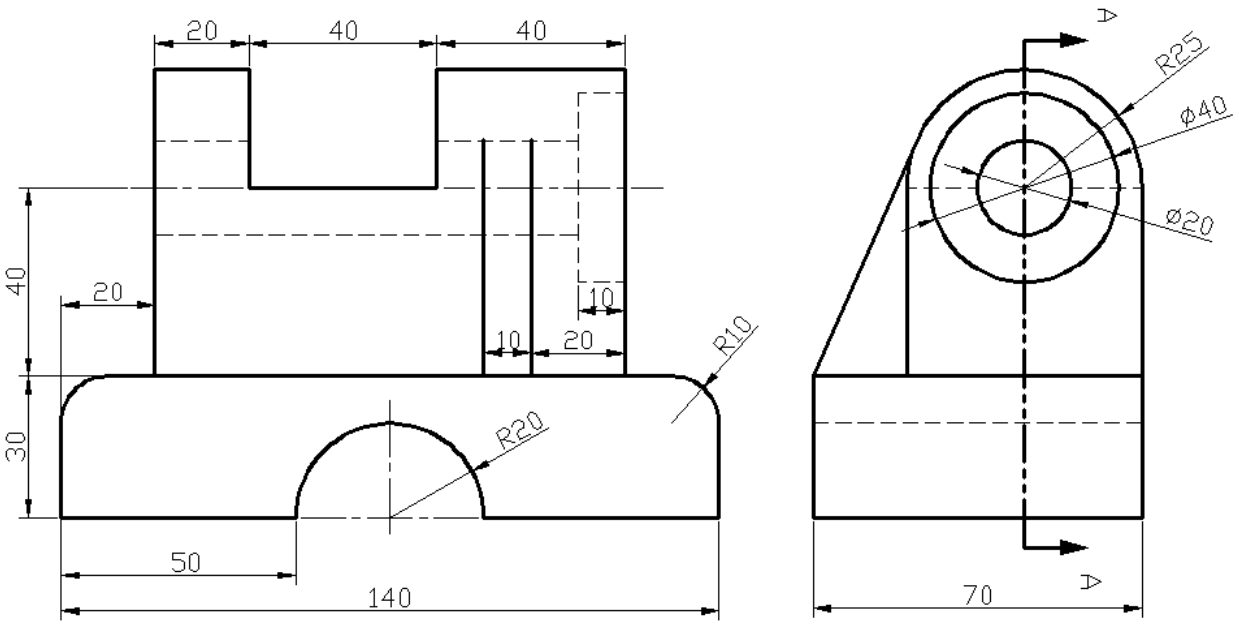
f:)



Oblique Drawings	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**33**

Exercise (3): For the given FRONT and LEFT side views;

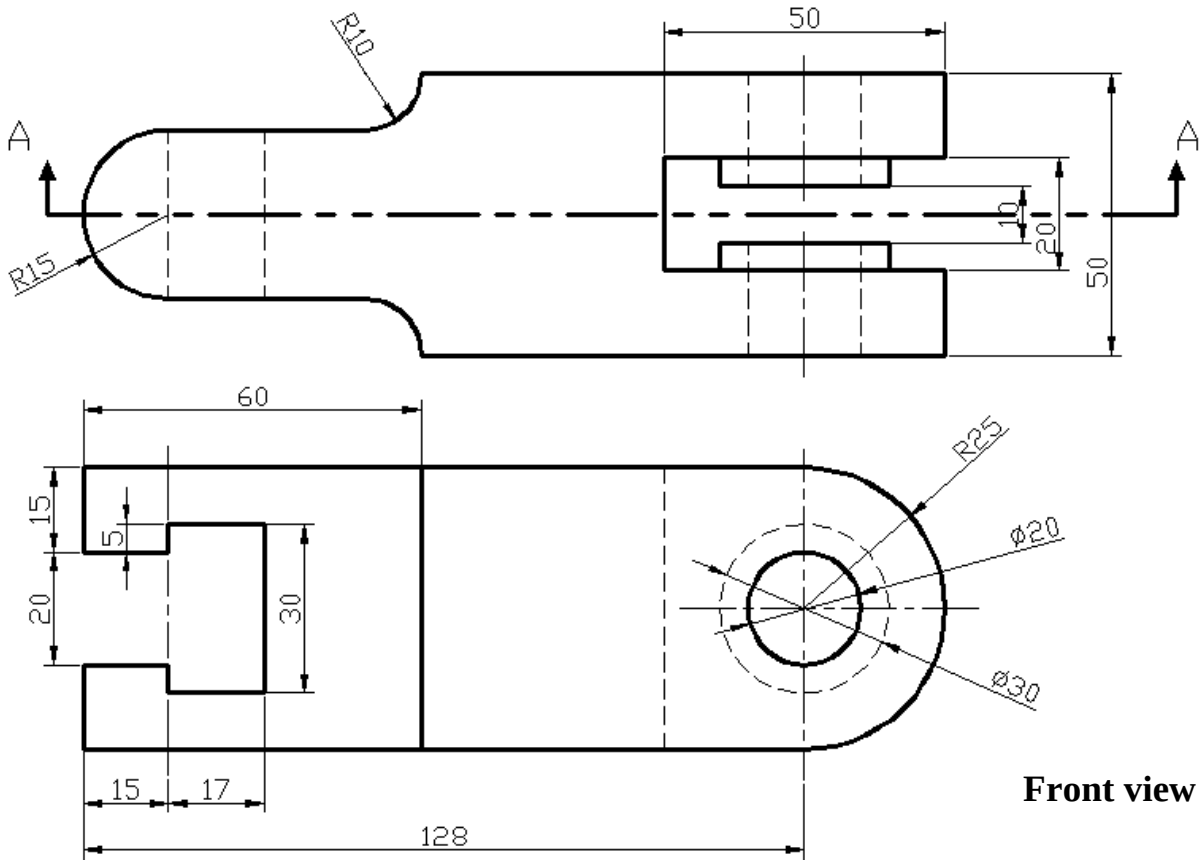
– Make an Isometric drawing.



Front view

Exercise (4): For the given FRONT and TOP side views;

– Make an oblique drawing (45o to Right).



Front view

oblique Drawings	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**35**

oblique Drawings

NAME: _____

FILE No : _____

DATE: _____

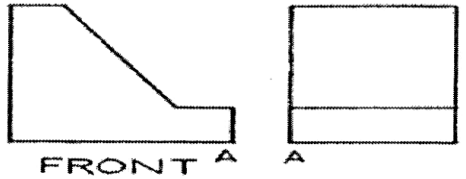
36

Oblique Drawings - Cavalier and Cabinet

Part A

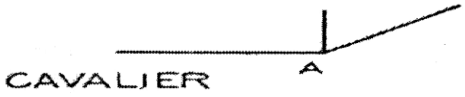
Note: Cavalier is the full depth and Cabinet is the half depth.

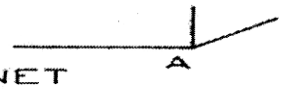
Exercise (6): Draw Cavalier and Cabinet oblique pictorials of each problem using instruments. Double the dimensions of each problem using the dividers

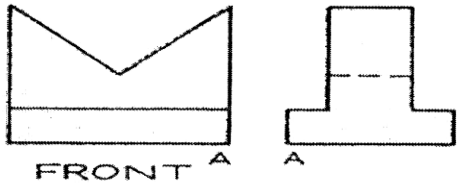


1

2

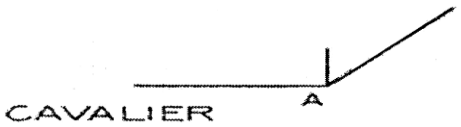


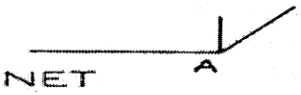




3

4



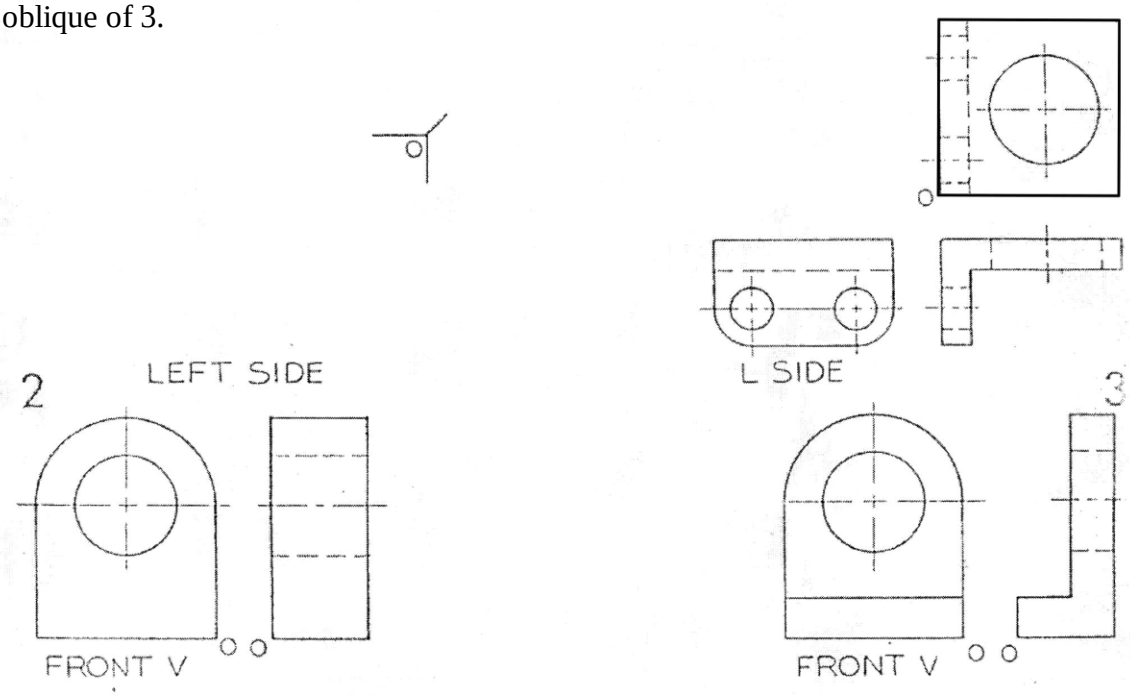


Oblique Drawings - Cavalier and Cabinet

Part B

Note: Cavalier is the full depth and Cabinet is the half depth.

Exercise (7): Double the dimensions of the orthographic views and draw cavalier obliques of 1 and 2. And a cabinet oblique of 3.



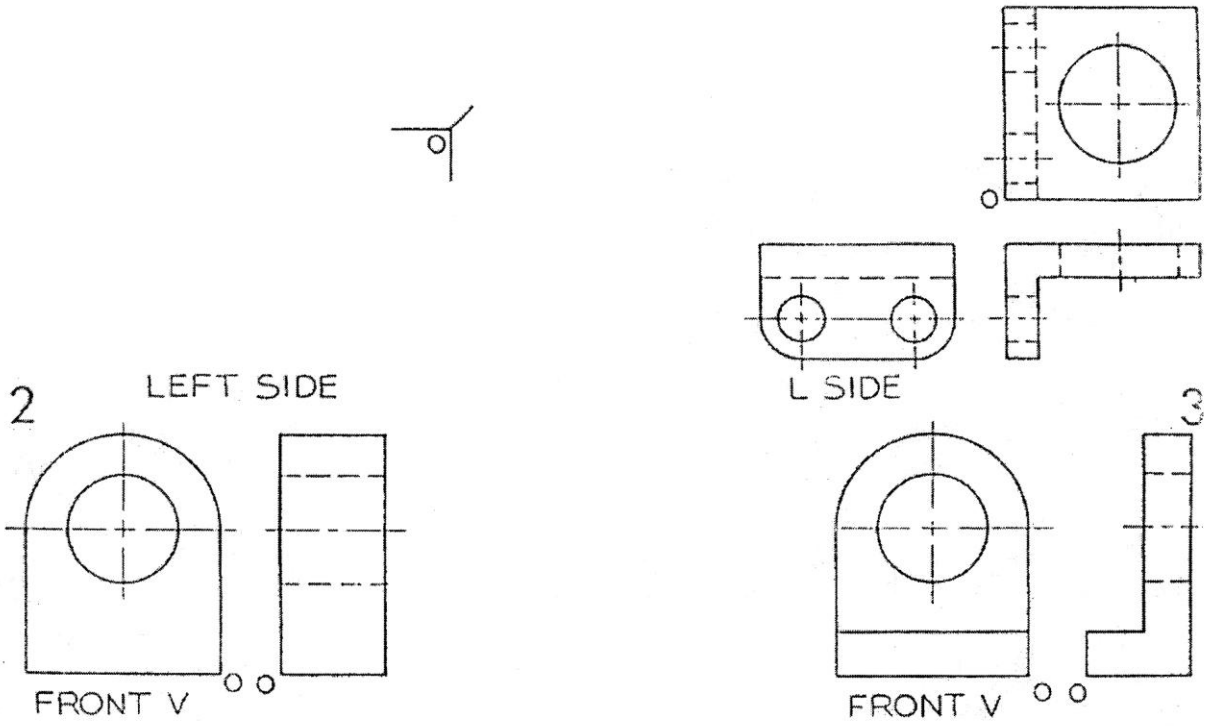
FRONT VIEW

FRONT VIEW

Oblique Drawing	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**37**

Isometric Drawings - *Part A*

Exercise (7): Double the dimensions of the orthographic views and draw cavalier obliques of 1 and 2. And a cabinet oblique of 3



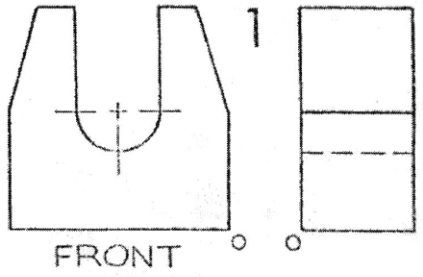
FRONT VIEW

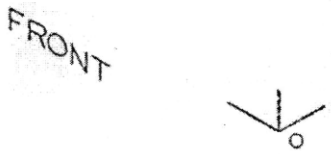
FRONT VIEW

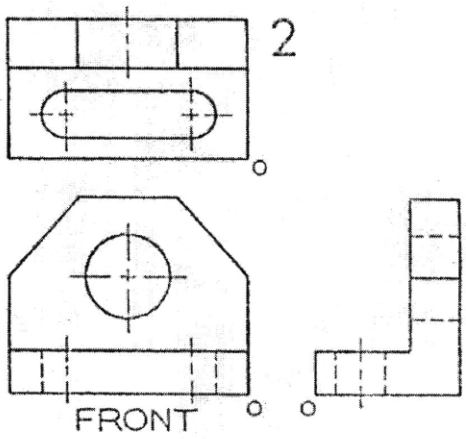
Isometric Drawings	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**38**

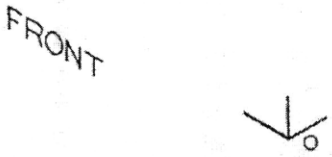
Isometric Drawings - *Part B*

Exercise (8): Using the dividers, double the dimensions of the orthographic views and construct an isometric drawing of the parts.









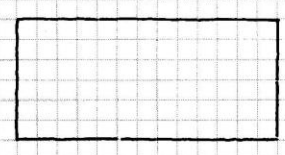
Topic Six : Basic Dimensioning

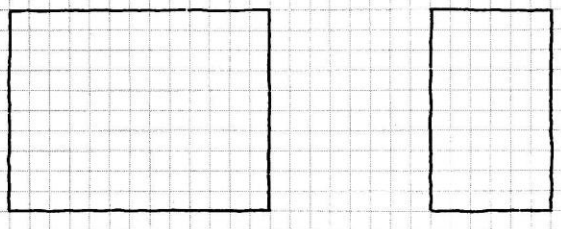
BASIC DIMENSIONING FREEHAND

A. DIMENSION COMPLETELY OMITTING NUMERALS

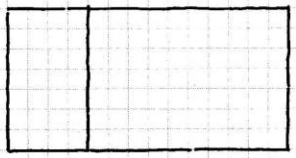
B. DIMENSION COMPLETELY WITH NUMERALS

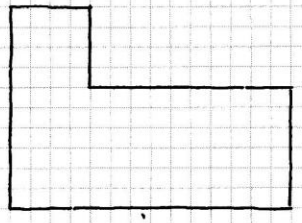
1 GAUGE



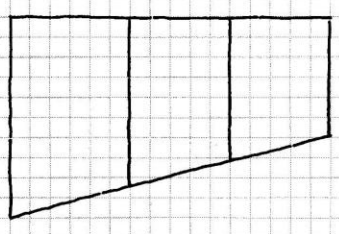


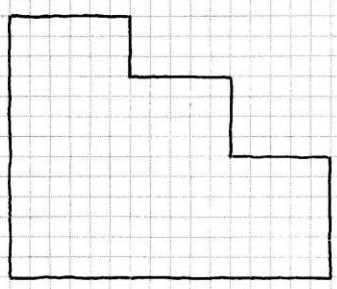
2 STOP



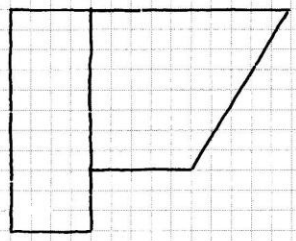


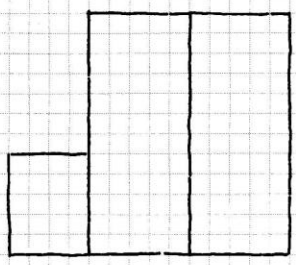
3 LOCK





4 MOUNT





Basic Dimensioning	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**40**

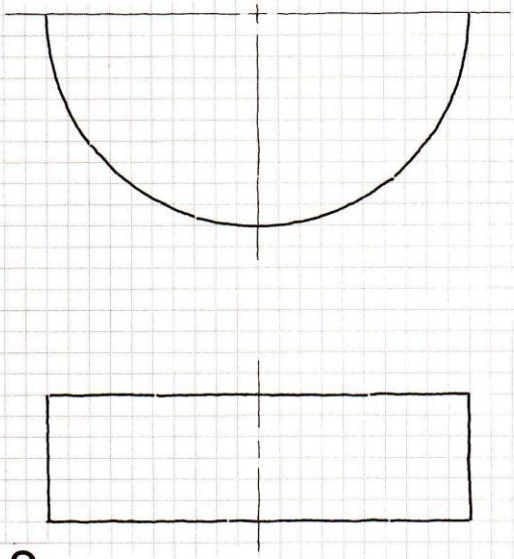
BASIC DIMENSIONING

DIMENSION FREEHAND. FOLLOW INSTRUCTIONS A OR B AS ASSIGNED. COUNT THE 1/8" GRID TO DETERMINE DIMENSIONS. SCALE: FULL SIZE.

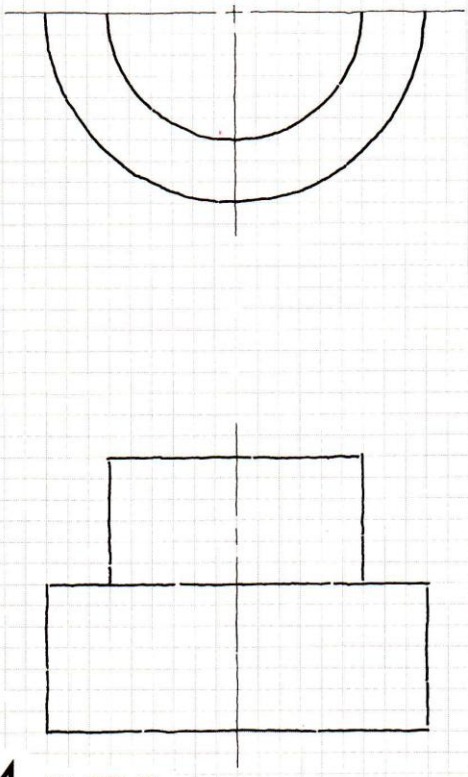
A. DIMENSION COMPLETELY WITHOUT NUMERALS.

B. DIMENSION COMPLETELY USING NUMERALS.

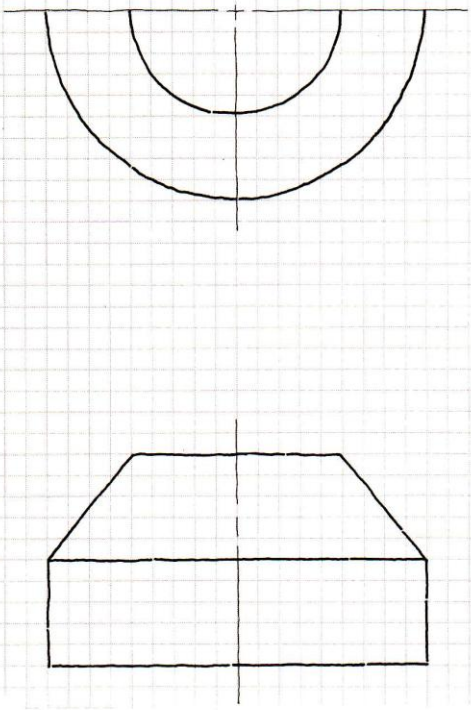
1 SPACER



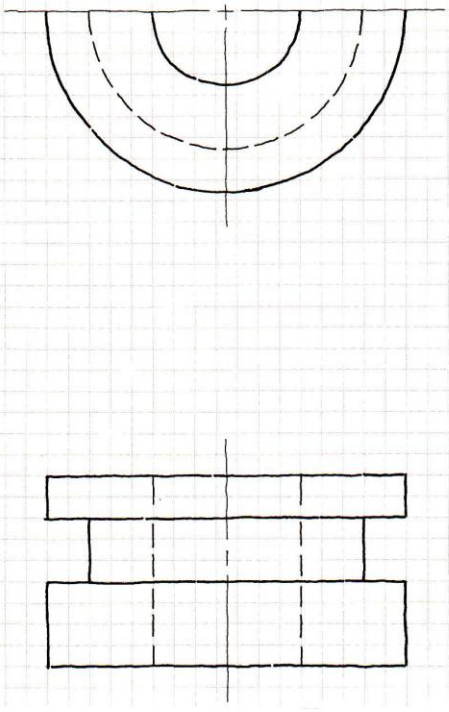
2 PULLEY BLANK



3 DUST GUARD

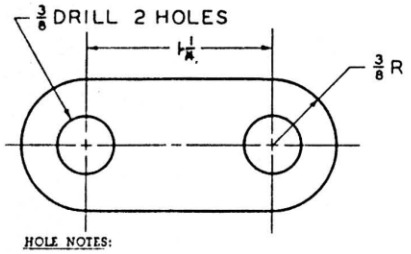


4 SLEEVE



Basic Dimensioning	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**41**

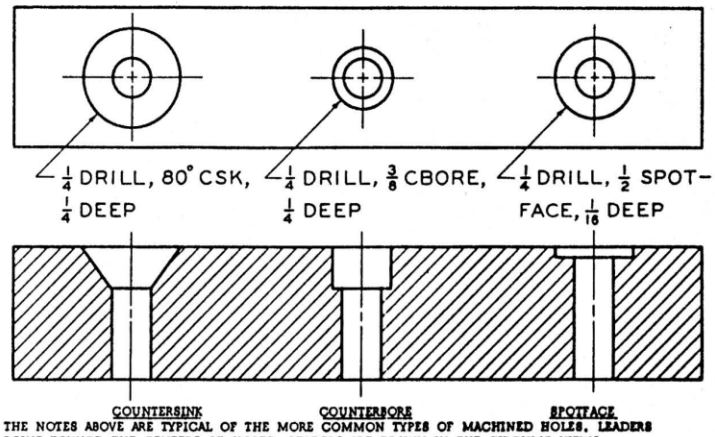
DIMENSIONING– NOTES FOR HOLES



HOLE NOTES:

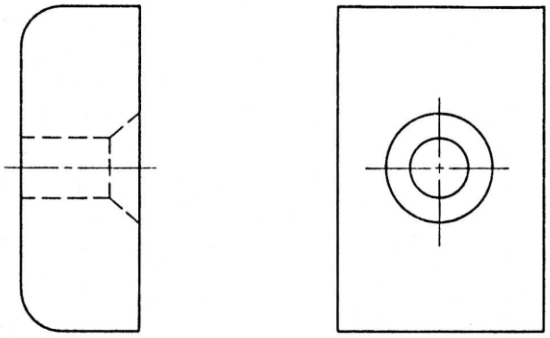
CYLINDRICAL HOLES ARE USUALLY DIMENSIONED BY NOTES SPECIFYING THE MACHINE OPERATION WITH A LEADER IN THE CIRCULAR VIEW.
NOTE: THE LINK ABOVE NEEDS NO OVERALL DIMENSION SINCE THE OBJECT HAS CIRCULAR ENDS.

DIMENSION THE OBJECTS BELOW.
SCALE: FULL SIZE.

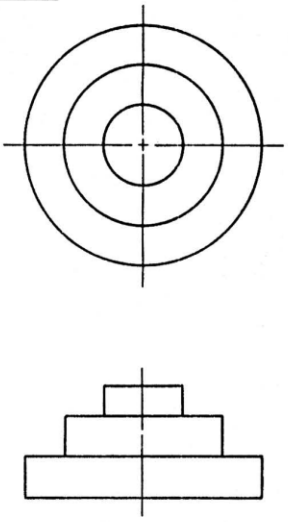


THE NOTES ABOVE ARE TYPICAL OF THE MORE COMMON TYPES OF MACHINED HOLES. LEADERS POINT TOWARD THE CENTERS OF HOLES. LEADERS ARE DRAWN IN THE CIRCULAR VIEWS.

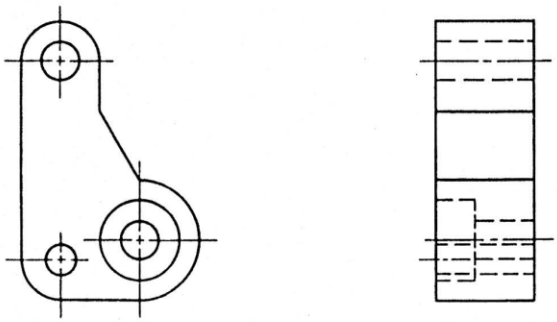
1. CLAMP



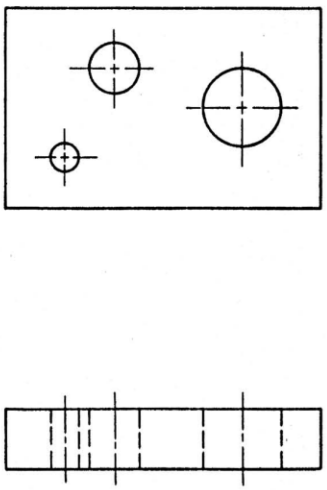
2. PULLEY



3. LEVER LINK



4. DRILL FIXTURE

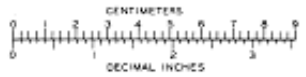


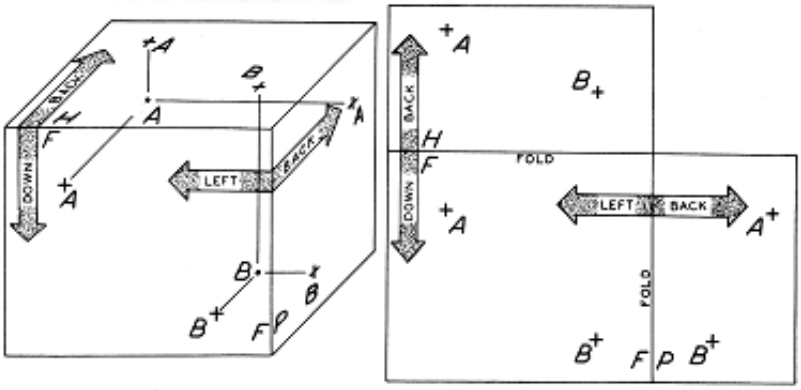
Basic Dimensioning	NAME : _____ FILE No : _____	DATE: _____	42

Topic Seven: Descriptive Geometry

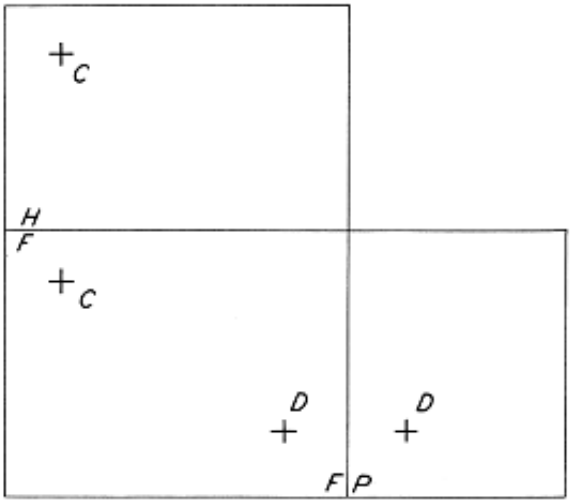
POINT PROJECTION

THE EXAMPLES AT THE RIGHT SHOW THE OBLIQUE AND ORTHOGRAPHIC PROJECTIONS OF POINTS A AND B. ALSO SHOWN ARE THE DIRECTIONAL RELATIONSHIPS. CUT OUT THE ORTHOGRAPHIC DRAWING AND FOLD AS INDICATED TO PRODUCE A MODEL.

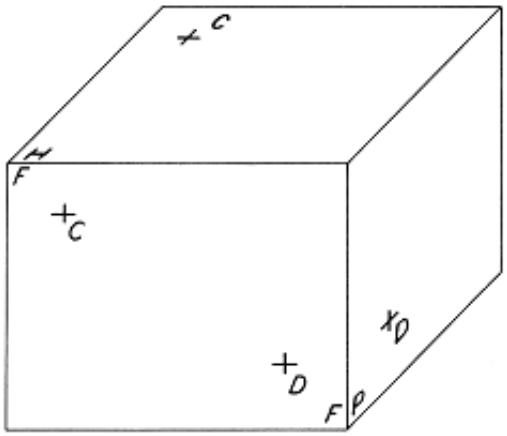




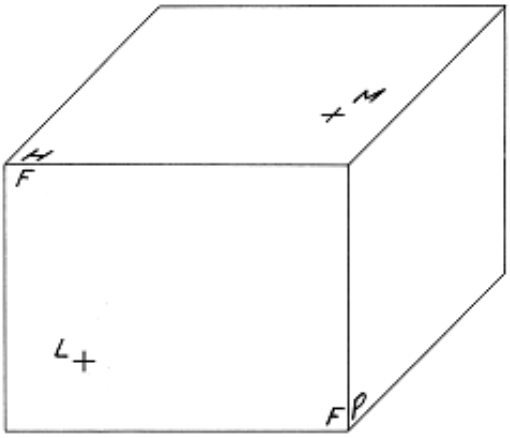
1. DRAW THE MISSING ORTHOGRAPHIC PROJECTIONS OF POINTS C AND D.



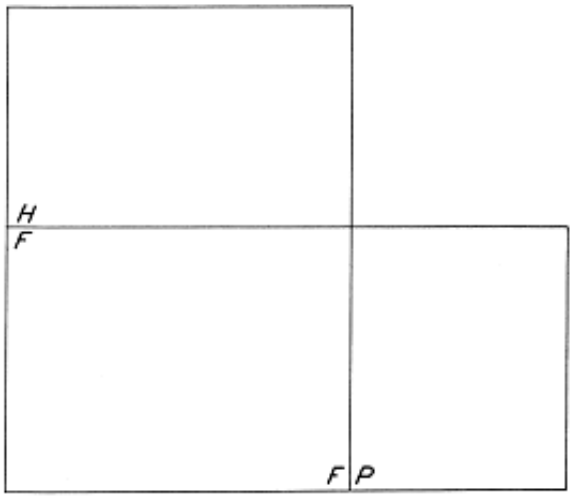
2. DRAW THE OBLIQUE PROJECTIONS OF POINTS C AND D, AND DRAW THE POSITIONS OF THESE POINTS IN SPACE.



3. POINT L IS 1 INCH BEHIND THE FRONTAL PLANE AND POINT M IS 1/2 INCH BELOW THE HORIZONTAL PLANE. DRAW THE OBLIQUE PROJECTIONS OF POINTS M AND L AND THEIR POSITIONS IN SPACE.



4. DRAW THE ORTHOGRAPHIC PROJECTIONS OF POINTS L AND M AS LOCATED IN PROBLEM NUMBER THREE.

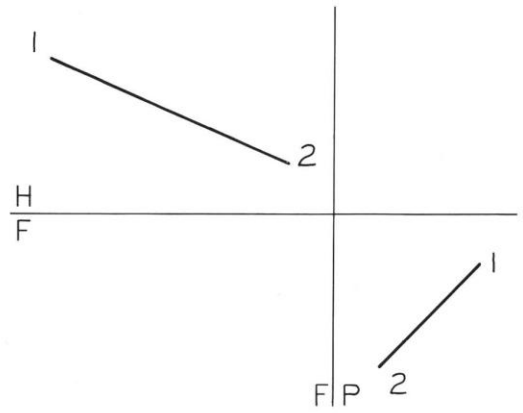


Descriptive Geometry **Point Projection**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**43**

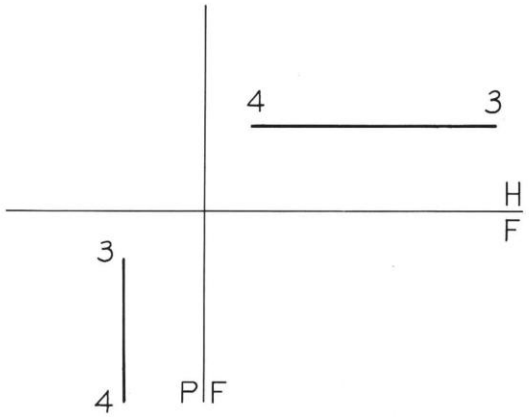
DRAW THE MISSING VIEWS OF EACH LINE AND INDICATE WHAT TYPE OF LINE EACH IS. LABEL TRUE LENGTH LINES TL.

LINES

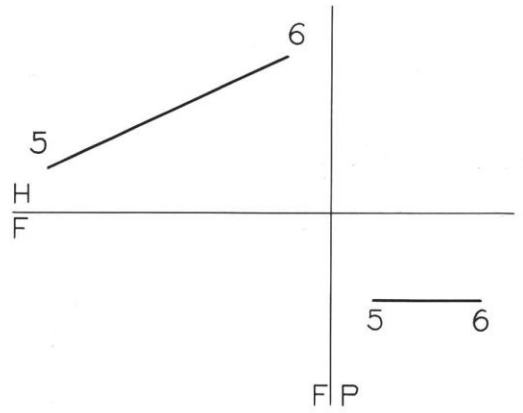
1 TYPE:



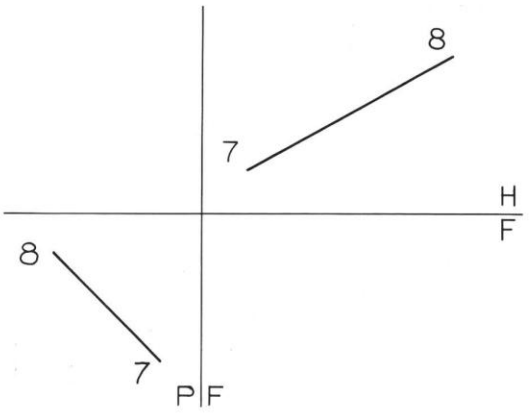
2 TYPE:



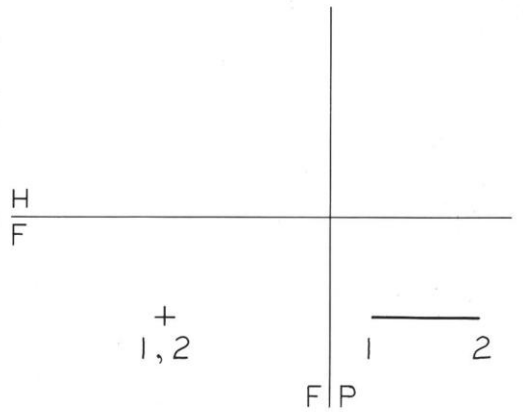
3 TYPE



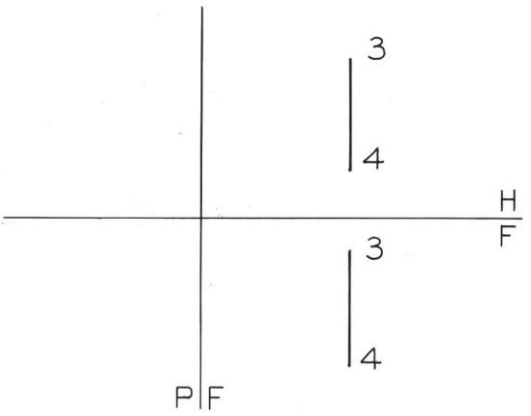
4 TYPE:



5 TYPE:



6 TYPE:

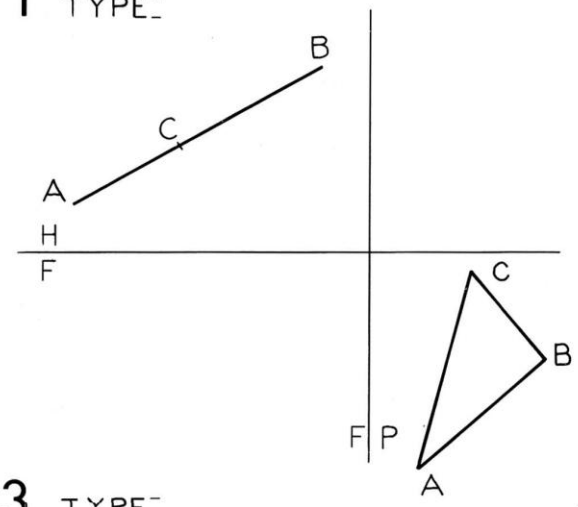


Descriptive Geometry **Line Projection**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**44**

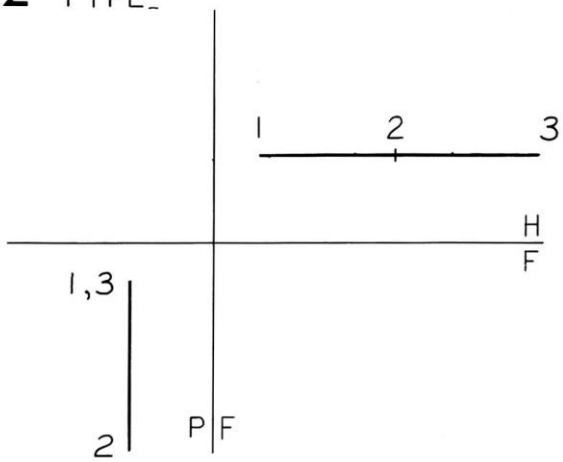
IN EACH PROBLEM DRAW THE MISSING VIEW OR VIEWS OF THE PLANE SHOWN. SPECIFY THE TYPE OF PLANE AND, WHERE THE PLANE APPEARS TRUE SHAPE, LABEL THAT VIEW TS.

PLANES

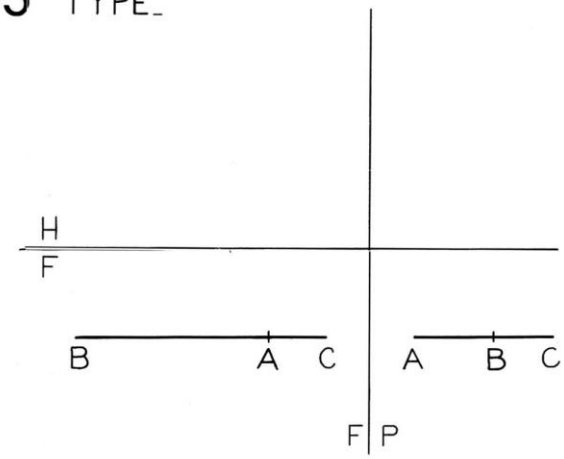
1 TYPE:



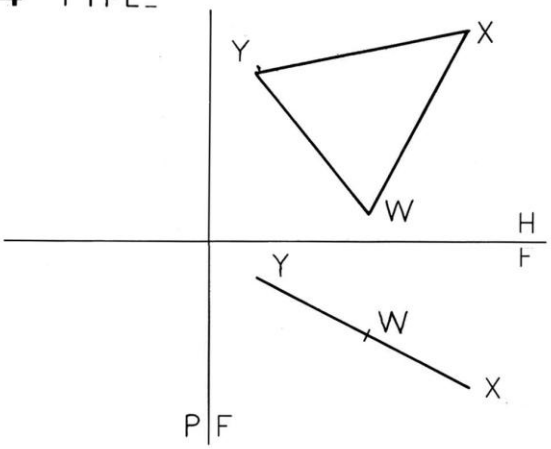
2 TYPE:



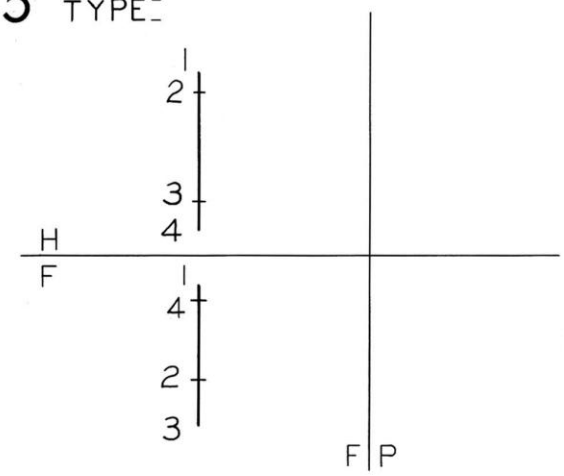
3 TYPE:



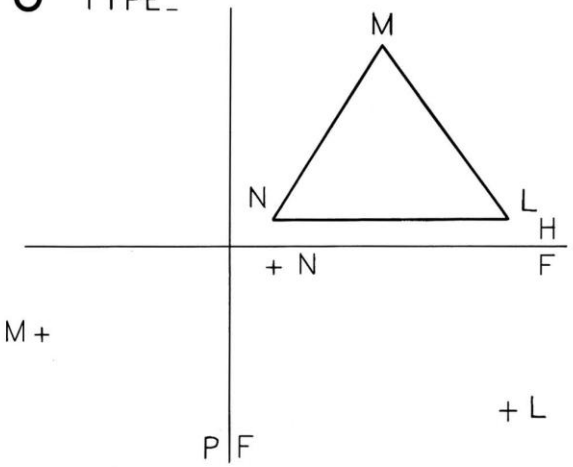
4 TYPE:



5 TYPE:

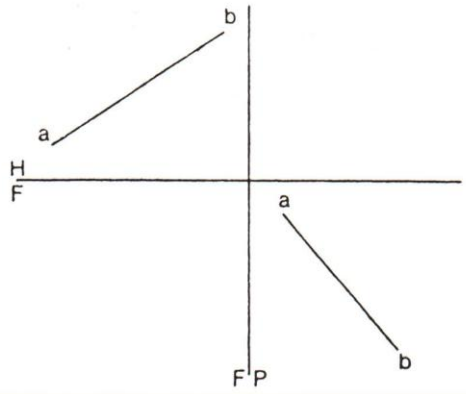


6 TYPE:

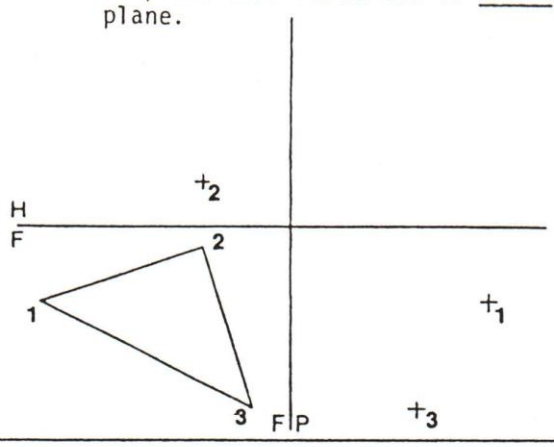


Descriptive Geometry **Line & Plane**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**45**

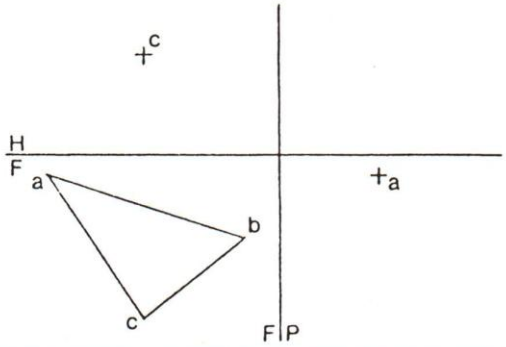
Q1. Draw front view of line AB, Line AB is _____ line.



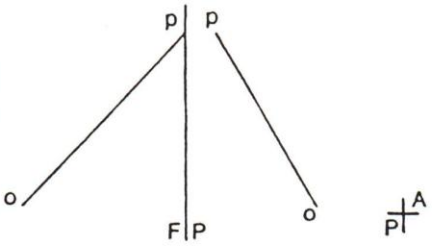
Q2. Draw horizontal and profile views of plane 123. Plane 123 is _____ plane.



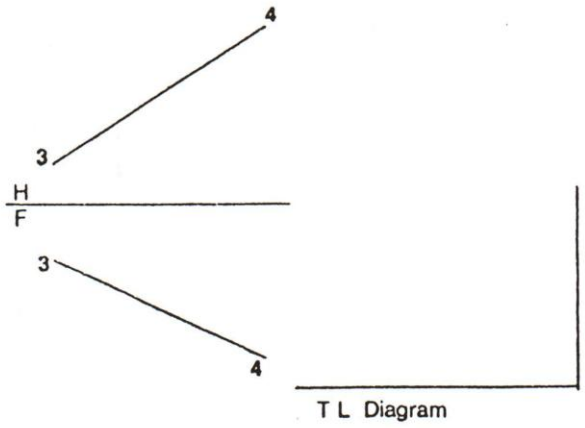
Q3. Plane ABC is true size and shape in the front view. Draw the horizontal and profile views of plane ABC.



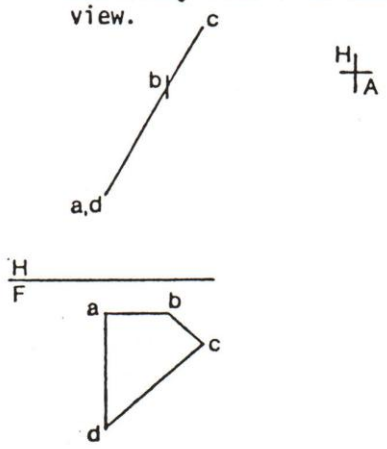
Q4. Find the true length of line OP by using an auxiliary view projected from the profile view.



Q5. Construct a True Length Diagram of line 34 showing line 34 true length.



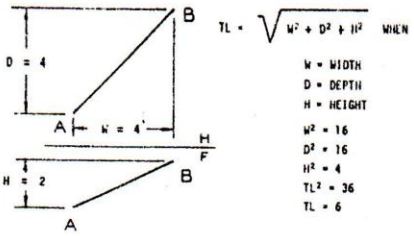
Q6. Find the true size and shape of plane ABCD by projecting to an auxiliary view from the horizontal view.



Descriptive Geometry Point Projection	NAME : _____ FILE No : _____	DATE: _____	46

TRUE LENGTH OF A LINE

MATHEMATICAL EXAMPLE: (PYTHAGOREAN THEOREM)



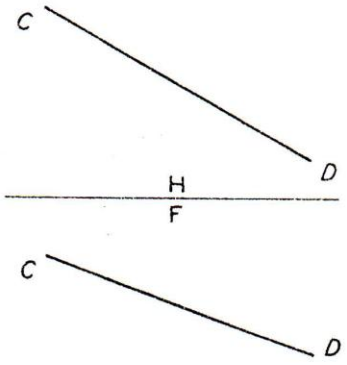
$TL = \sqrt{W^2 + D^2 + H^2}$ WHEN

W = WIDTH
D = DEPTH
H = HEIGHT

$W^2 = 16$
$D^2 = 16$
$H^2 = 4$
$TL^2 = 36$
$TL = 6$

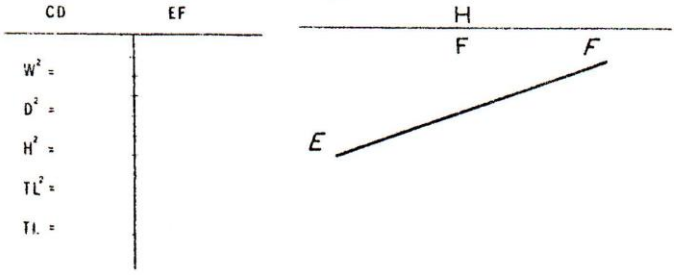
1 DETERMINE THE TRUE LENGTHS OF EACH LINE BY THE FORMULA.

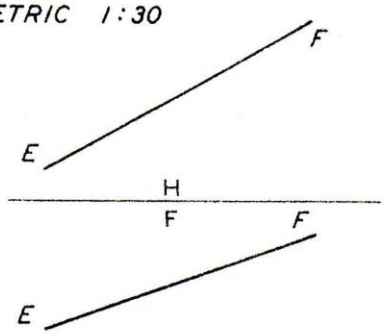
SCALE: 1 = 5.0' METRIC 1:60



2

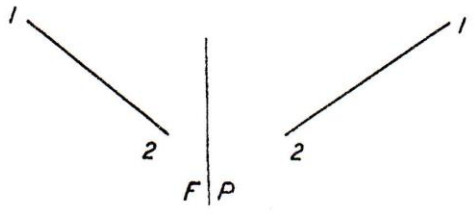
SCALE: 1 = 2.0'
METRIC 1:30





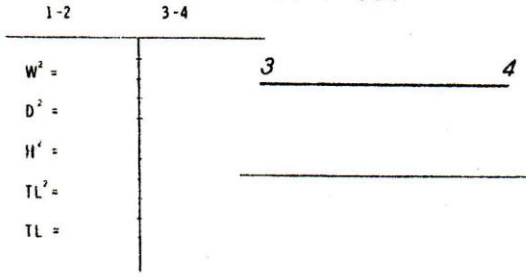
3

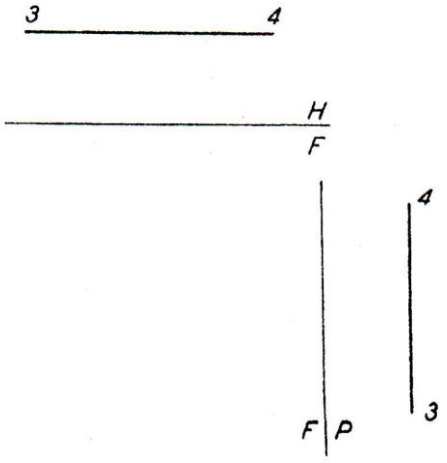
SCALE: 1 = 3.0'
METRIC 1:40



4

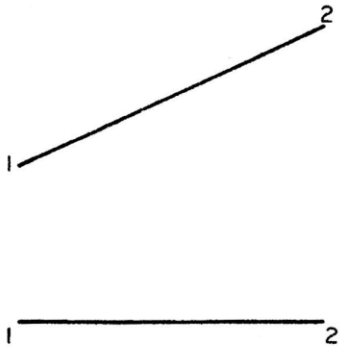
SCALE: 1 = 50.0'
METRIC 1:600



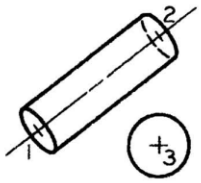


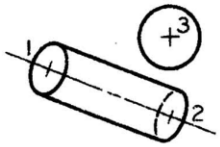
Descriptive Geometry True Length	NAME : _____ FILE No : _____	DATE: _____	47

(1) Obtain a point view of line 1-2.

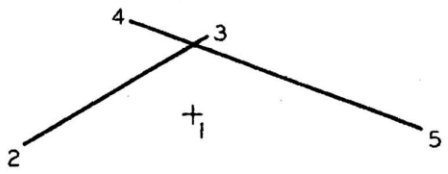


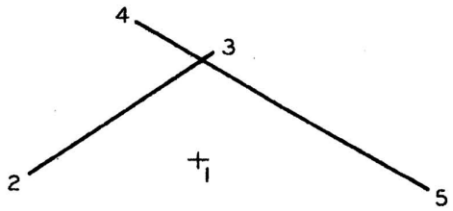
(2) Determine the clearance (minimum distance) between cylinder 1-2 and spherical tank 3. Scale: 1" = 20'.





(3) Is point 1 nearer to line 2-3 or to line 4-5? Measure the true distances.

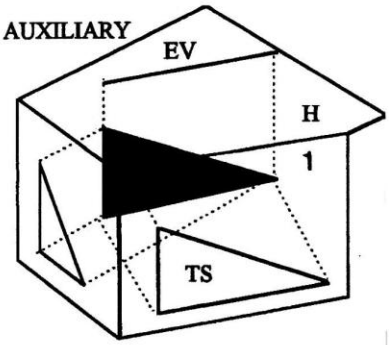




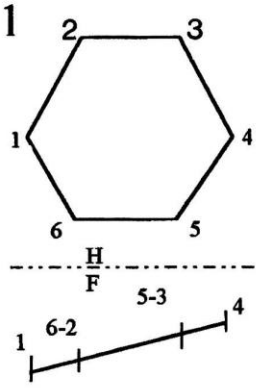
Descriptive Geometry Point View	NAME : _____ FILE No : _____	DATE: _____	48

Draw the true size views of the planes for all of the problems shown below.

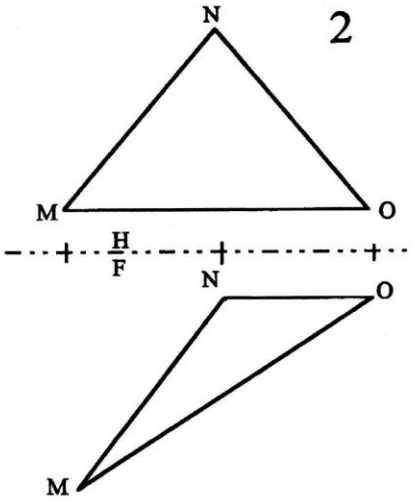
TOP ADJACENT AUXILIARY



1

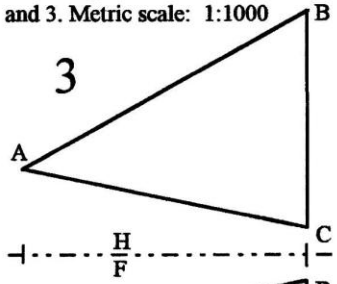


2



Compute the areas of the true - size planes for problems 2 and 3. Metric scale: 1:1000

3

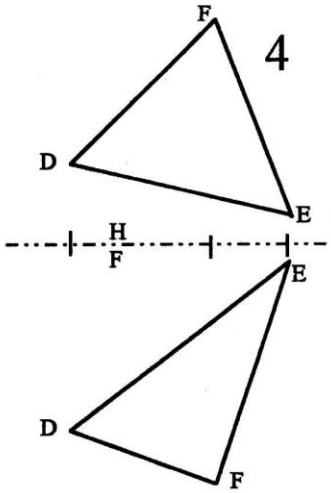


AREAS

NO.3 _____ M^2

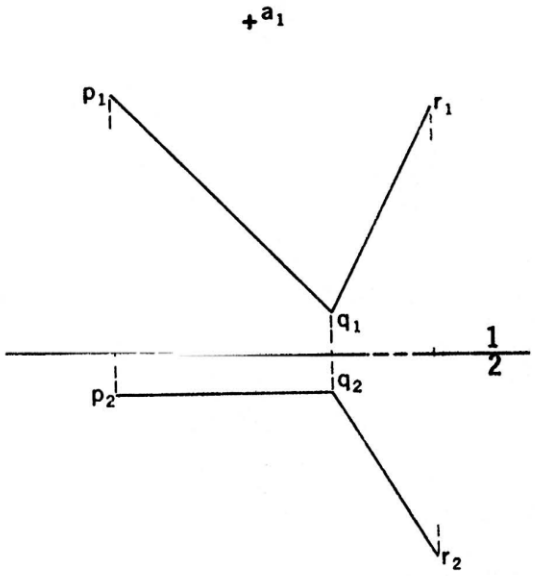
NO.4 _____ M^2

4



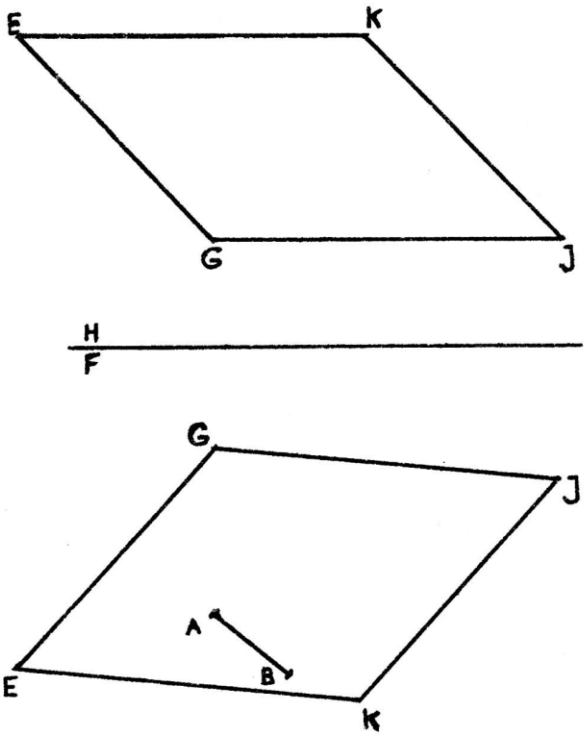
Descriptive Geometry **True size**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**49**

Point A is the back corner of a 19mm Square lying in plane PQR. Two sides of the square are parallel to line PQ. Show the complete square in both given views. Label all points.



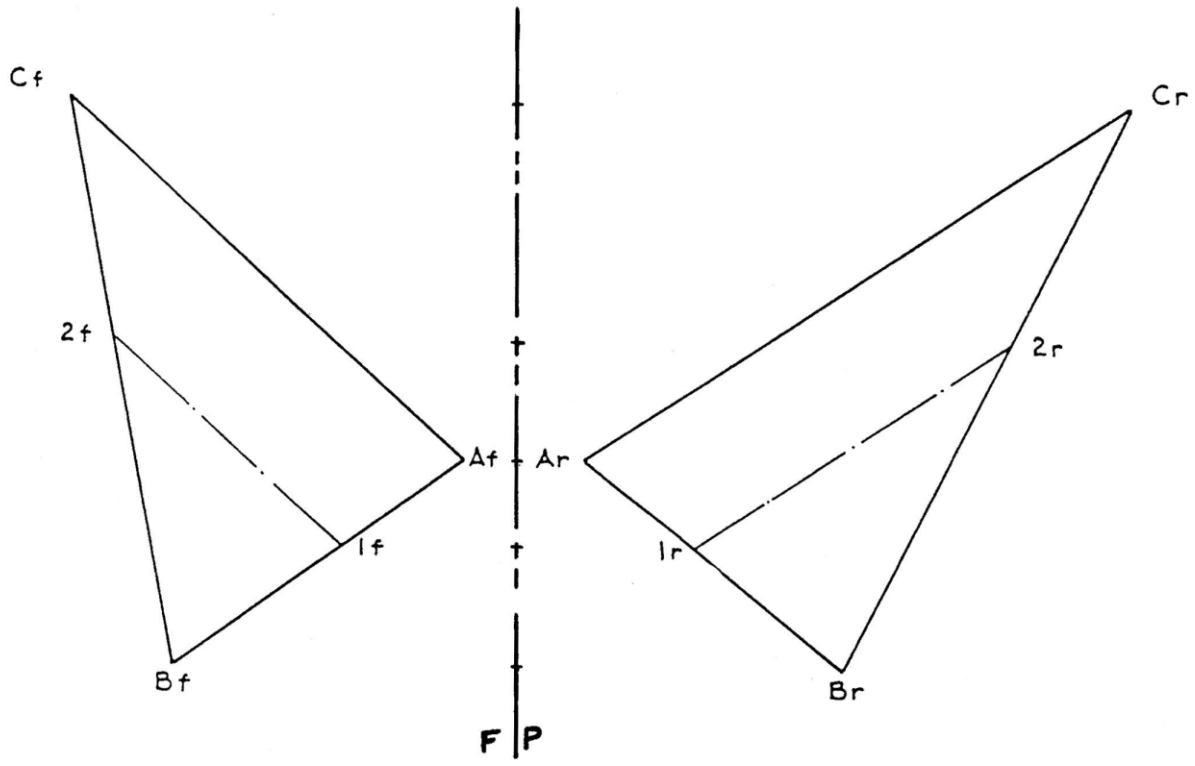
Descriptive Geometry	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**50**

Line AB is one side of a regular hexagon lying in plane EGJK. Complete the hexagon in all views.



Descriptive Geometry	NAME : _____ FILE No : _____	DATE: _____	51

A circular Hole is to be cut in surface ABC. The center of the hole lies on line 1-2 and is 48 mm from A. Complete Front and Right side views of Hole. (Hole Dia. is 38 mm).

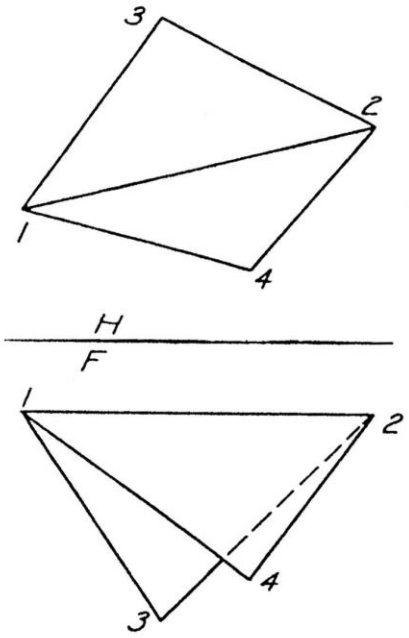


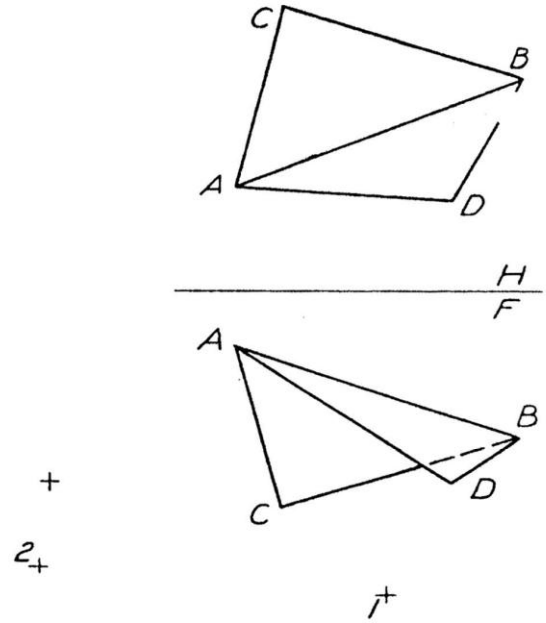
Descriptive Geometry	NAME : _____ FILE No : _____	DATE: _____	52

ANGLE BETWEEN PLANES

1 DRAW THE VIEW THAT SHOWS THE TRUE ANGLE BETWEEN PLANES 1-2-3 AND 1-2-4.

ANGLE =

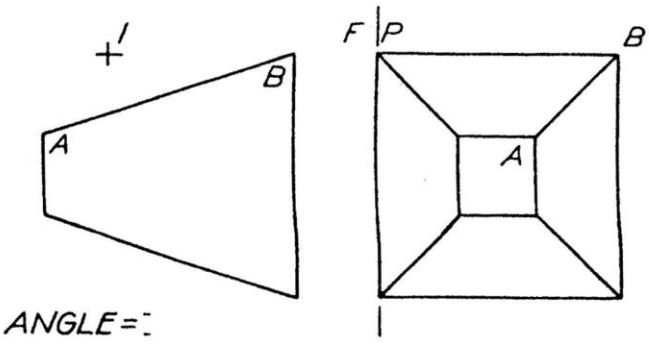




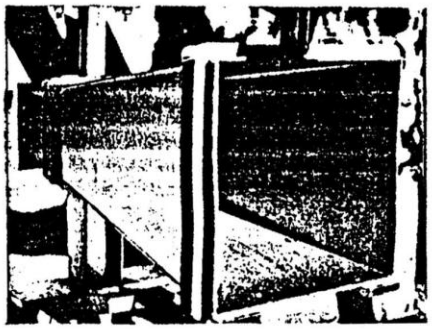
ANGLE =

2 DRAW THE VIEW THAT SHOWS THE TRUE ANGLE BETWEEN PLANES ABC AND BCD.

3 IN ORDER TO BUILD A DIFFUSER SECTION SIMILAR TO THE ONE IN THE PHOTOGRAPH, THE DIHEDRAL ANGLE MUST BE KNOWN. USE AB AS THE LINE OF INTERSECTION IN QUESTION.

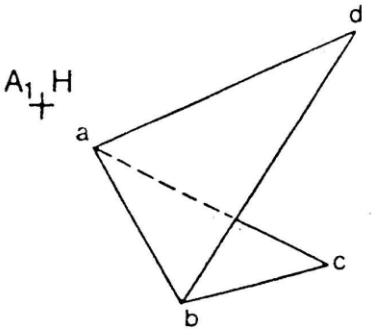


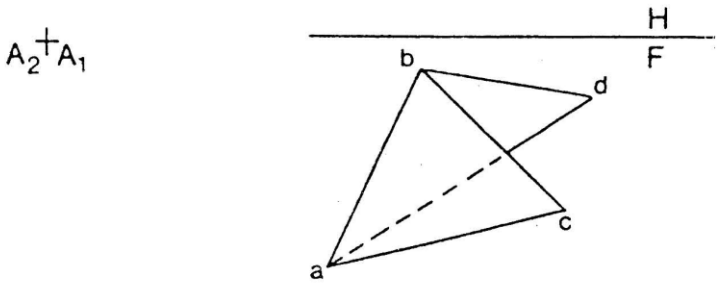
ANGLE =



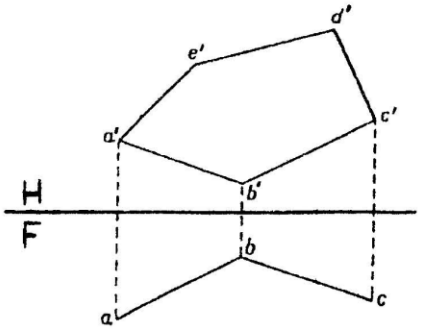
Descriptive Geometry **Dihedral Angle**	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**53**

Determine the angle between planes ABC and ABD. Show all construction.
The angle between planes ABC and ABD is _____





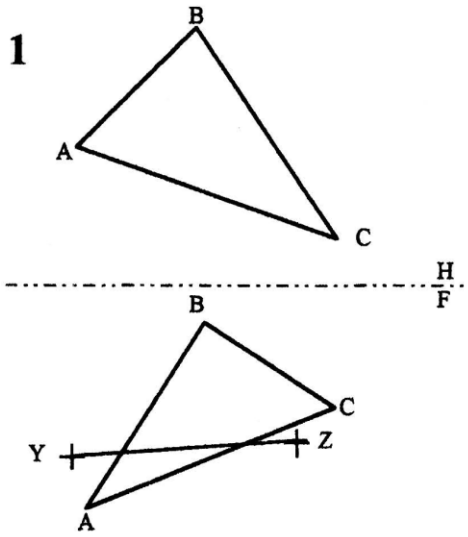
Determine the frontal projection of the plane pentagon ABCDE, given its horizantal projection and the frontal projection of two adjacent side.



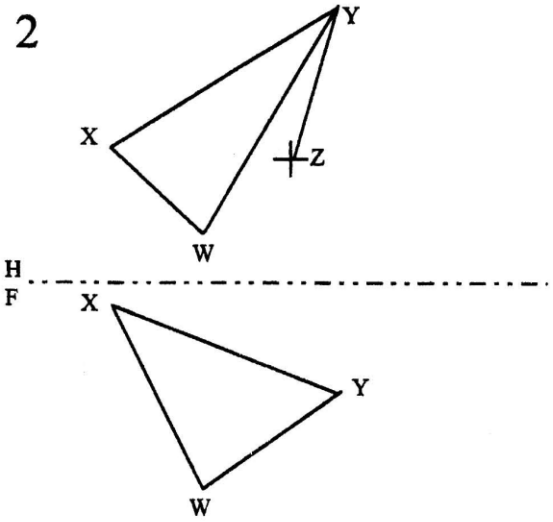
Descriptive	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**54**

In problems 1 and 2 draw the missing projection of the line YZ. In each problem, the line lies in the plane.

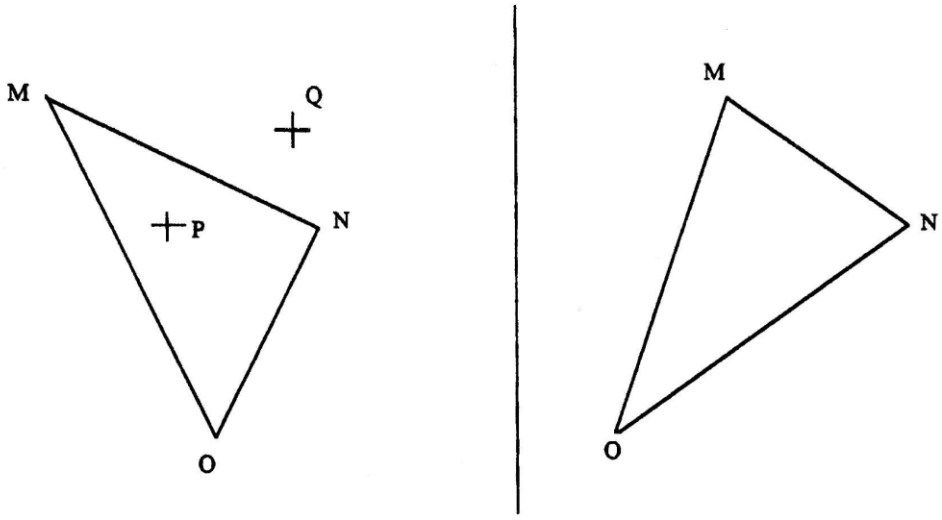
1



2



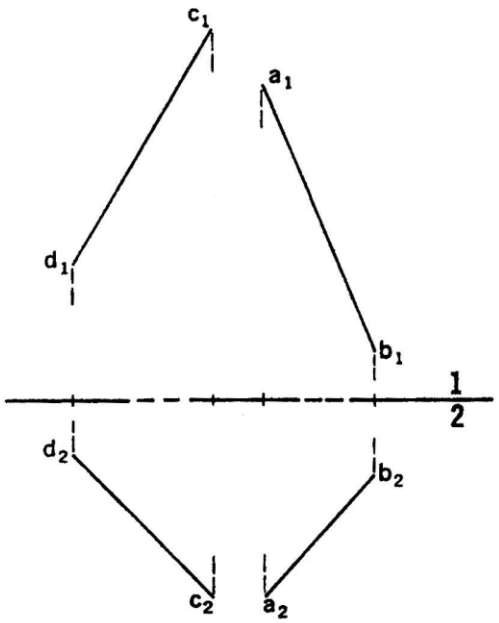
Draw the RS projections of points P & Q both of which lie in the plane below.



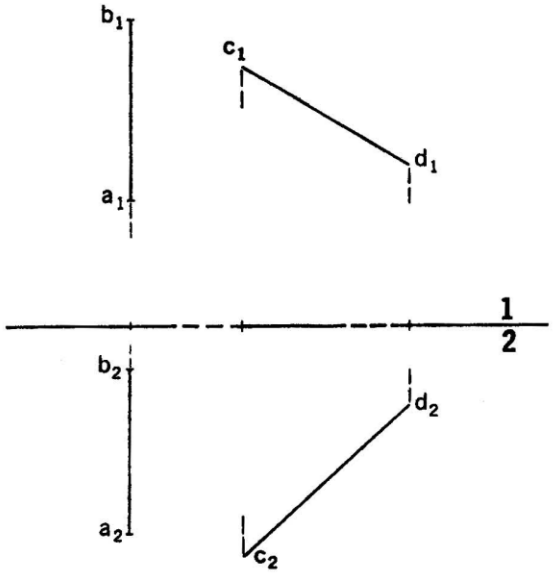
Descriptive	NAME : _____ FILE No : _____	DATE: _____	55

In both problems, construct a plane in the horizontal and frontal views that contains *AB* and is parallel to *CD*. Check by drawing an edge view of the plane and the corresponding view of *CD*.

A.

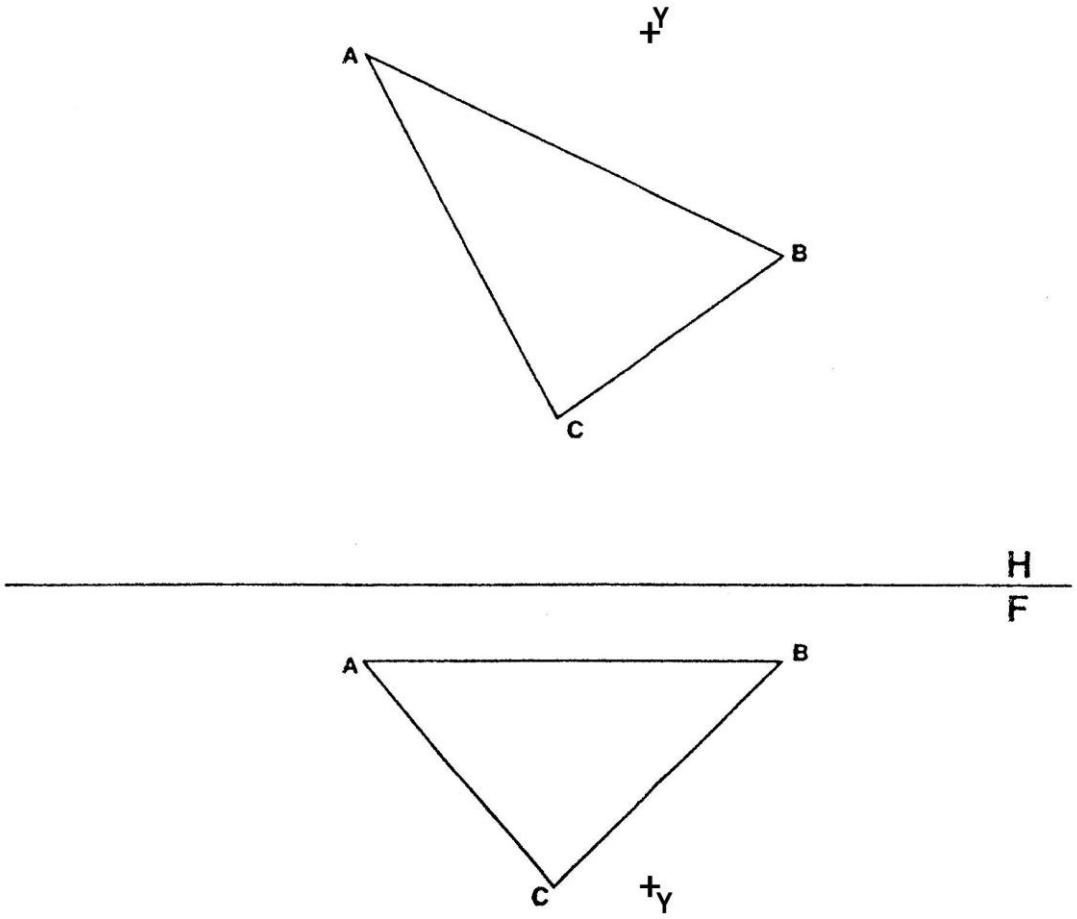


B.



Plane Containing one line Parallel to another line	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**56**

1. Draw H and F views of line CD perpendicular to AB and intersecting AB at point D.
2. Draw H and F views of line CE perpendicular to plane ABC with point E in the F plane.
3. Draw H and F views of line YZ perpendicular to plane ABC. Point Z lies in the H plane.

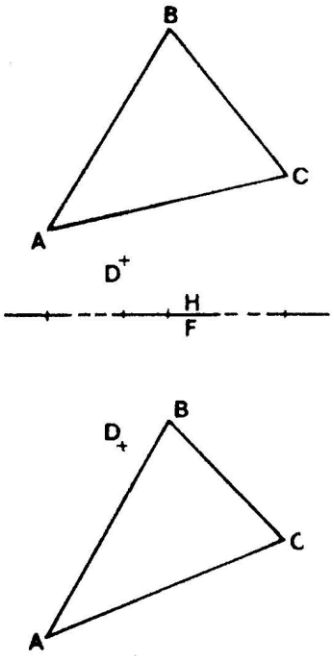


Perpendicularity	NAME : _____ FILE No : _____	DATE: _____	57

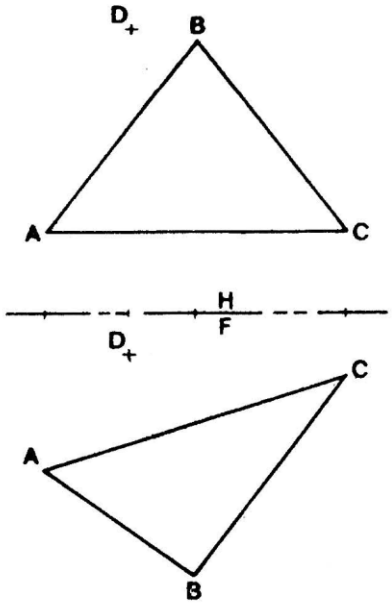
1 DRAW AND MEASURE THE TRUE LENGTH OF THE SHORTEST LINE FROM POINT D TO THE PLANE A-B-C FOR PROBLEMS 1 AND 2. DRAW THE LINE IN ALL OF THE VIEWS. METRIC SCALE: 1:2

PROB.1 - TL= _____

PROB.2 - TL= _____

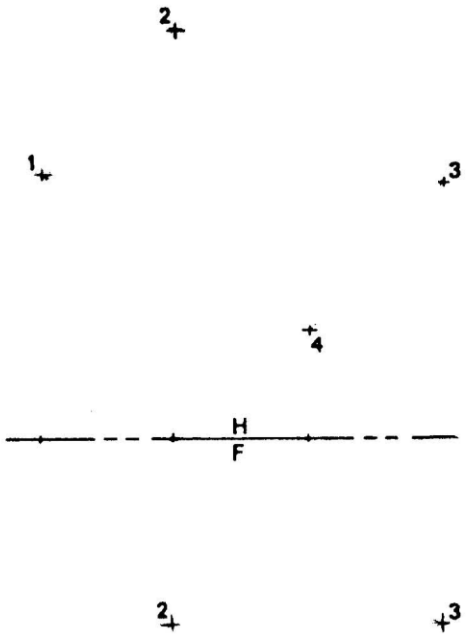


2



3 THE PLANE FORMED BY THE POINTS 1-2-3-4 IS THE BASE OF A RIGHT PYRAMID WITH VERTEX V AT AN ALTITUDE OF 1.5" ABOVE THE BASE AT ITS MIDPOINT. DRAW THE PYRAMID IN ALL VIEWS SHOWING THE CORRECT VISIBILITY. ANSWER THE QUESTIONS LISTED BELOW. SCALE: 1"= 1"

$V = \frac{1}{3} A_B H$ A_B= AREA OF THE BASE



1. IS THE BASE RECTANGULAR? _____
2. WHAT IS ITS AREA? _____
3. WHAT IS THE VOLUME OF THE PYRAMID? _____

Perpendicularity	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**58**

Perpendicularity

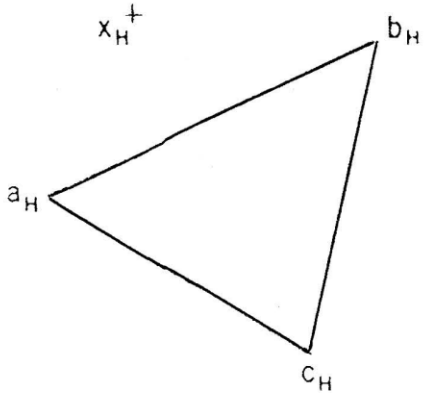
NAME : _____

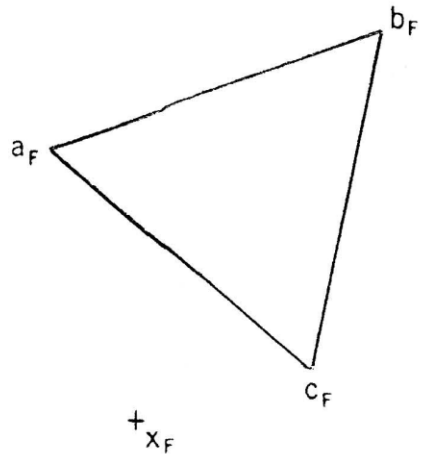
FILE No : _____

DATE: _____

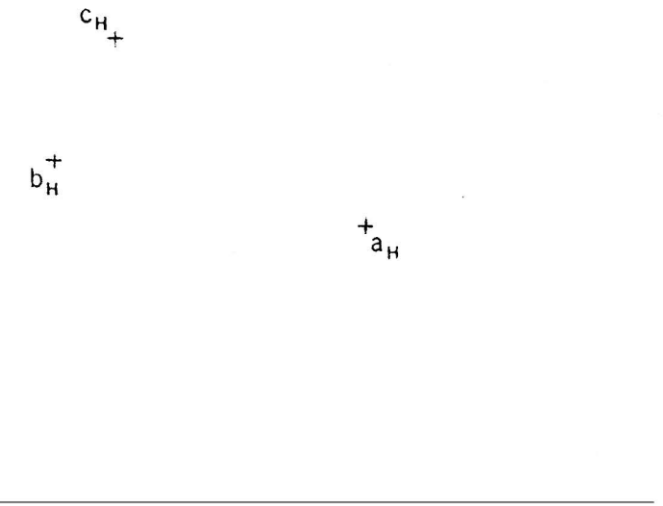
59

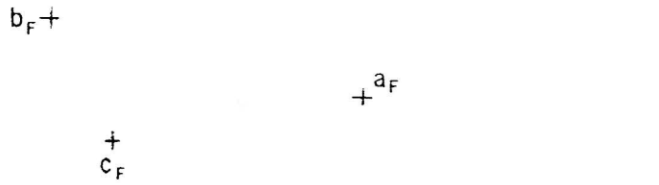
A line is perpendicular to a plane if its H-view is perpendicular to the H-view of a horizontal line of the plane, and its F-view is perpendicular to the F-view of a frontal line of tne plane. Using the two given views only, construct a perpendicular from point X to plane ABC. Determine the exact point of intersection, and determine correct visibility of the line and the plane.





Using the two given views, construct the H and F views of a right pyramid, the base of which is a parallelogram ABCD, and whose axis is 50 mm long. The axis extends downward and to the right.

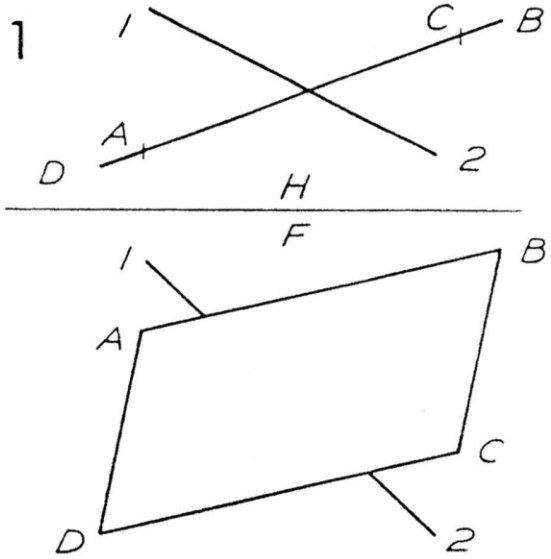




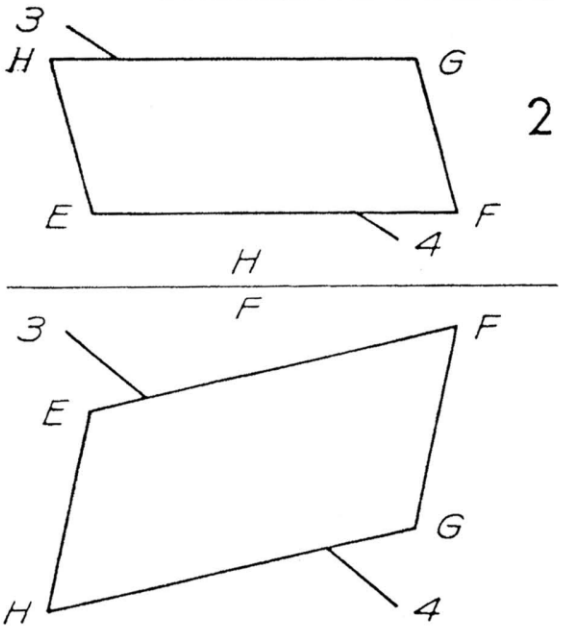
PIERCING POINTS

PROBLEMS 1 & 2: FIND THE PIERCING POINTS BY THE CUTTING-PLANE METHOD AND SHOW THE VISIBILITY IN ALL VIEWS.

1



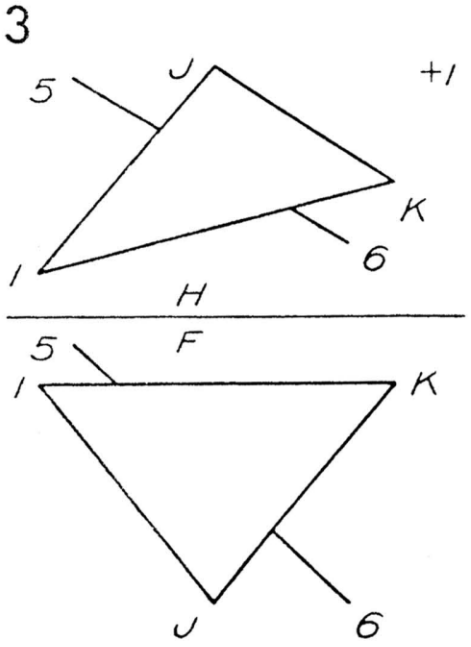
2



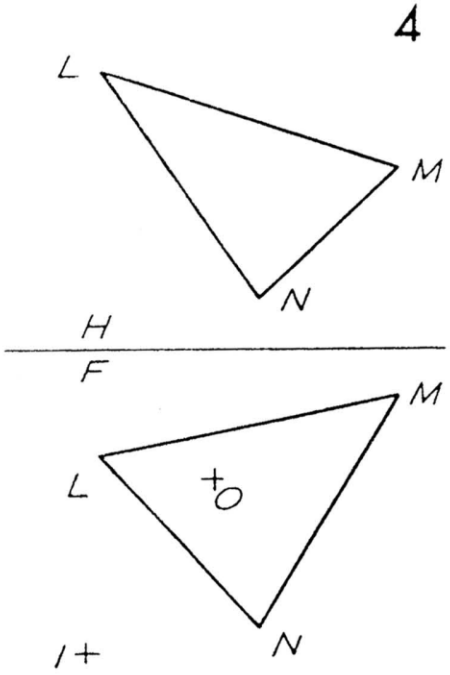
PROBLEM 3: FIND THE PIERCING POINT BY THE AUXILIARY-VIEW METHOD AND SHOW VISIBILITY.

PROBLEM 4: DRAW A 1 INCH LINE FROM POINT O ON THE PLANE THAT IS PERPENDICULAR TO THE PLANE IN BOTH VIEWS. SHOW VISIBILITY.

3

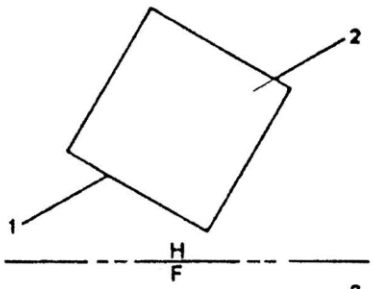


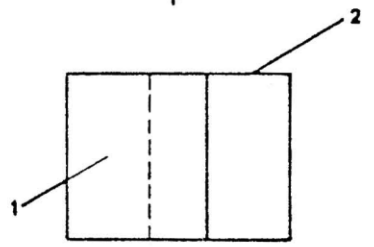
4



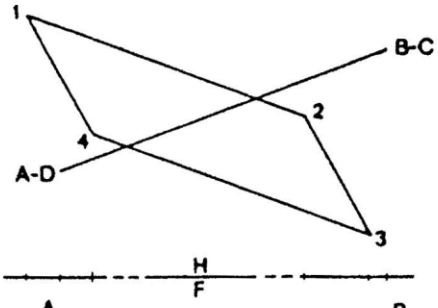
Piercing Point of line and Plane	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**60**

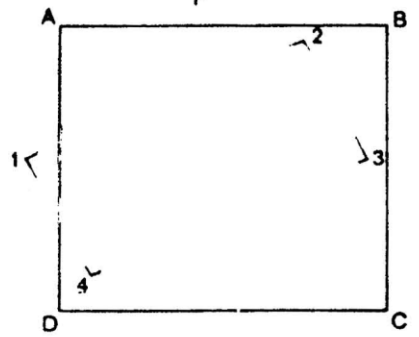
1 DETERMINE WHERE LINE 1-2 INTERSECTS THE SURFACES OF THE BLOCK. COMPLETE THE VIEWS.



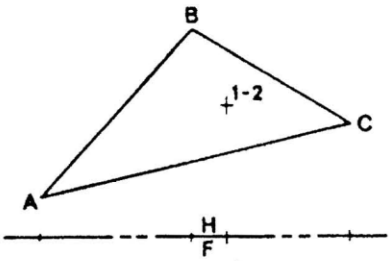


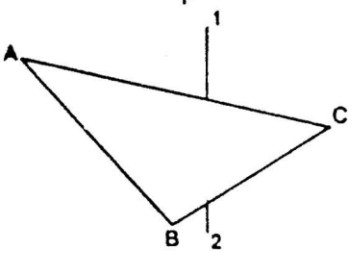
2 DETERMINE THE INTERSECTION BETWEEN THE TWO PLANES AND SHOW COMPLETE VISIBILITY.



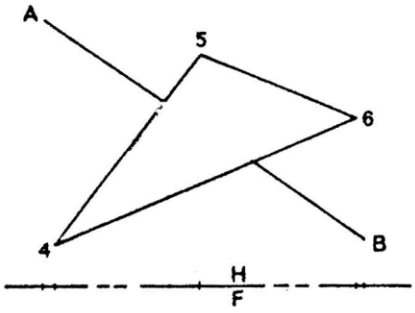


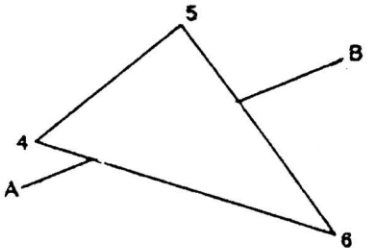
3 DETERMINE WHERE LINE 1-2 PIERCES PLANE A-B-C AND SHOW COMPLETE VISIBILITY.



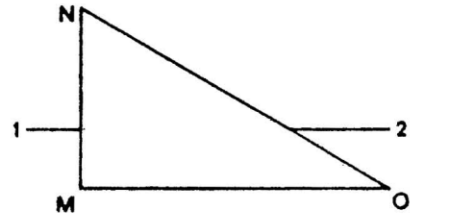


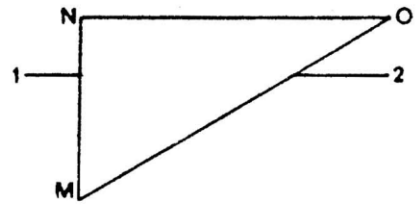
4 DETERMINE THE PIERCING POINT OF THE LINE AND PLANE BY THE AUXILIARY-VIEW METHOD. SHOW COMPLETE VISIBILITY.





5 DETERMINE THE PIERCING POINT OF THE LINE AND PLANE BY THE AUXILIARY-VIEW METHOD. SHOW COMPLETE VISIBILITY.

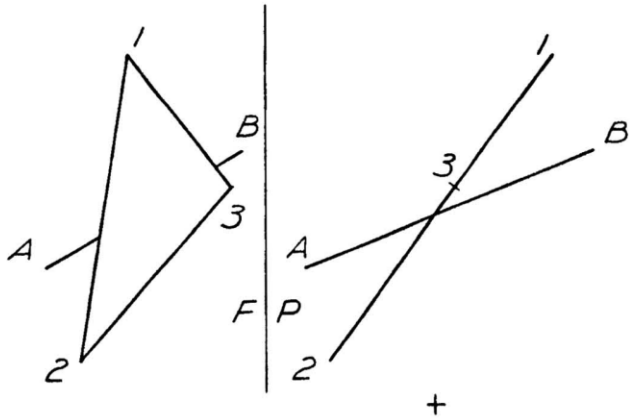




Piercing Point of line and Plane	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**61**

ANGLE BETWEEN LINE & PLANE

ANGLE :



+ 1

1 FIND THE ANGLE BETWEEN THE LINE AND THE PLANE BY THE PLANE METHOD. SHOW VISIBILITY IN ALL VIEWS.

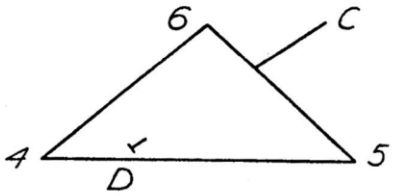
+ 2

2 AN ASTRONAUT'S LINE OF SIGHT IS ALONG LINE DC WHICH INTERSECTS THE TRIANGULAR WINDOW OF A SPACECRAFT.

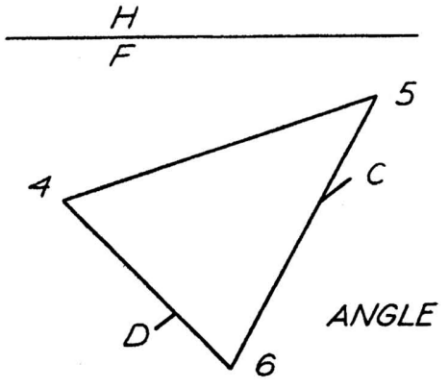
DETERMINE THE ANGLE BETWEEN THE LINE AND PLANE BY THE PLANE METHOD. PROJECT FROM THE TOP VIEW. SHOW VISIBILITY IN ALL VIEWS.

Courtesy of Ryan Aeronautical Co.

+ 2



+ 1

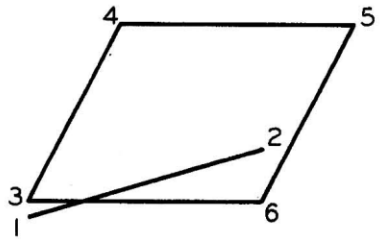


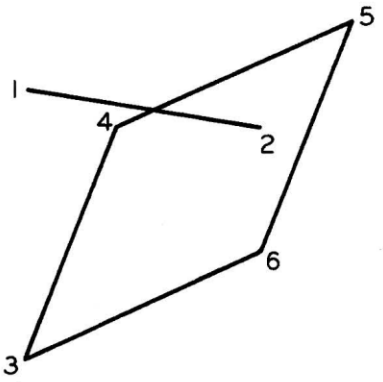
ANGLE :

+ 3

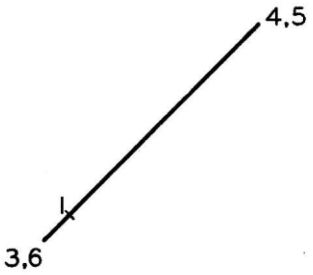
Angle between line and plane	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**62**

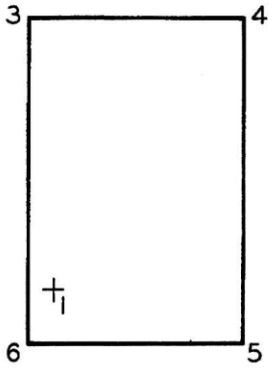
(1) Find the angle between control cable 1-2 and bulkhead 3-4-5-6.





(2) Establish the views of 1.50" line 1-2 such that the line 1-2 forms an angle of 25° with the given surface.





Angle between line and plane	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**63**

Oblique Pyramid

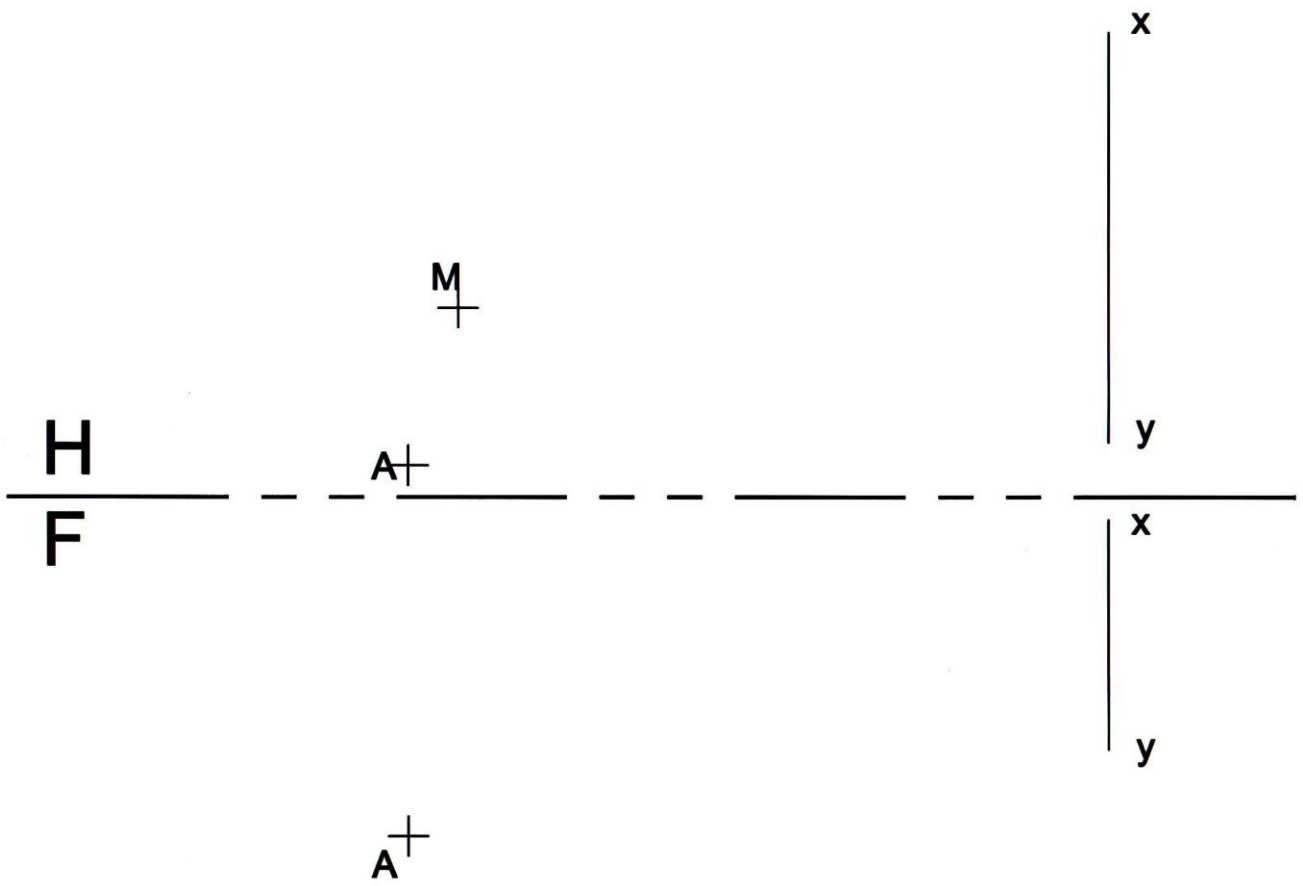
NAME : _____

FILE No : _____

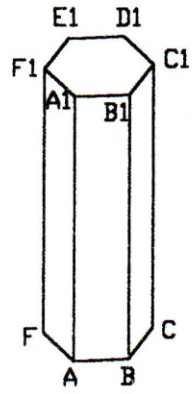
DATE: _____

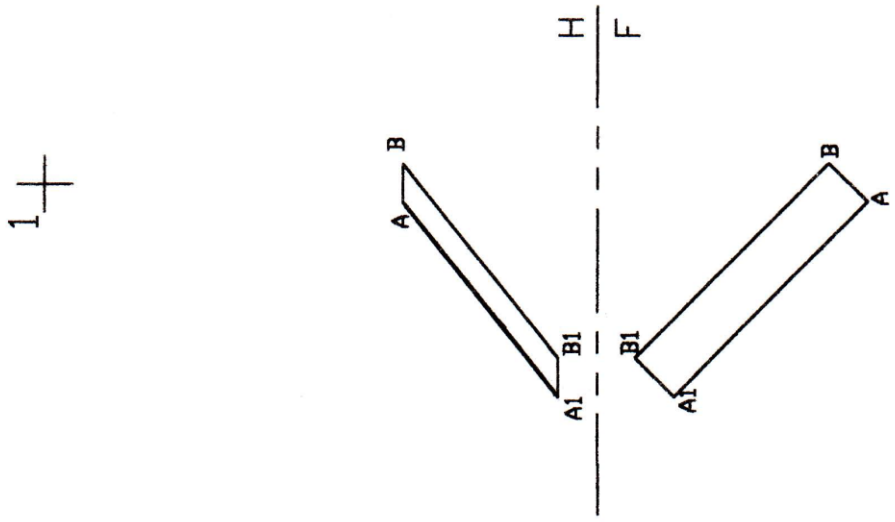
64

Construct the oblique hexagonal pyrimid of base ABCDEF lies in the horizontal plane with center at M. The vertex V of the pyramid lies on line xy. Show correct visibility. The pyramid height= 39 mm.



Given the lateral face A, A1, B1, B of a regular right hexagonal prism. Complete this prism in both plan and elevation views. Show visibility.





Right Prism	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**65**

Draw the right cone of the following specifications:

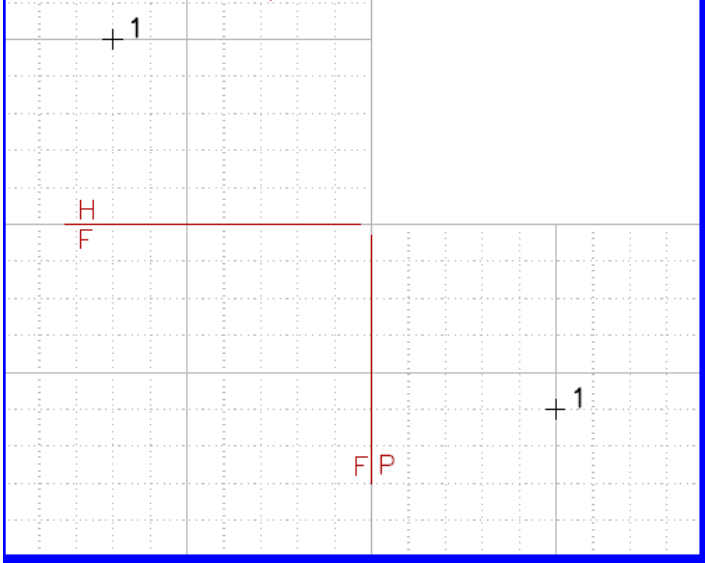
1) Its base lies in the plane ABC with base center at o.
2) Point D is on its lateral surface.
3) Its height= 35 mm.

* Show the correct visibility.

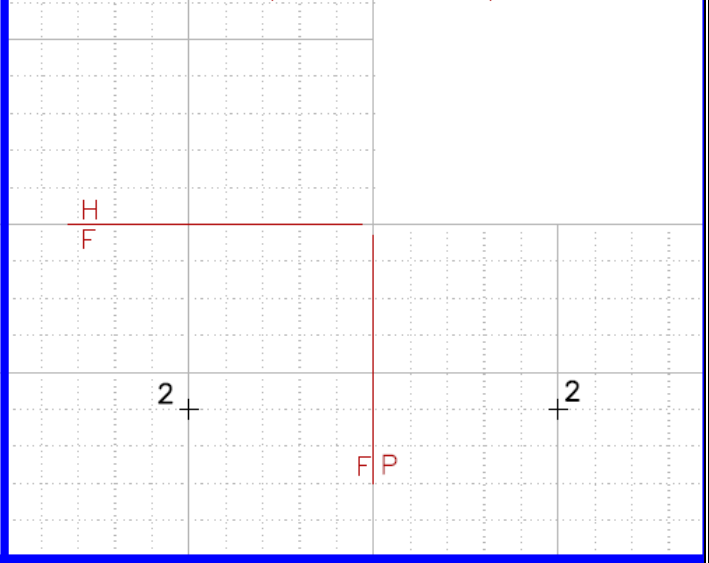
Right Cone	NAME : _____ FILE No : _____	DATE: _____	66

Revision Problems: Descriptive Geometry

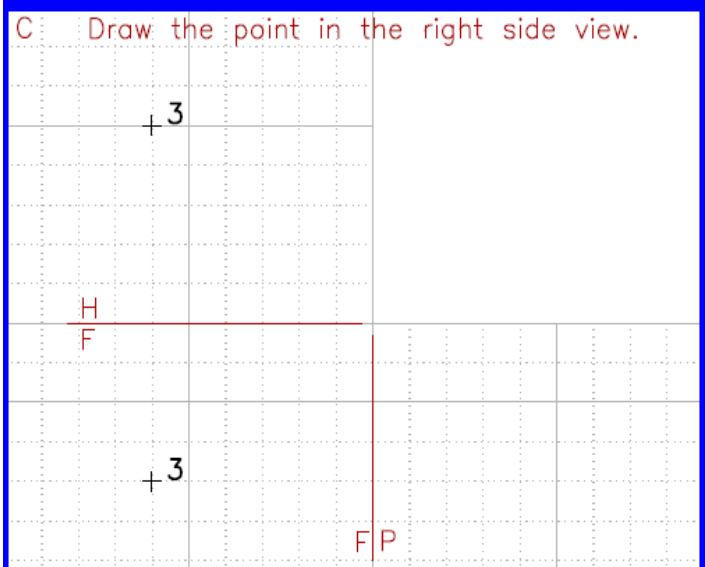
A Draw the point in the front view.



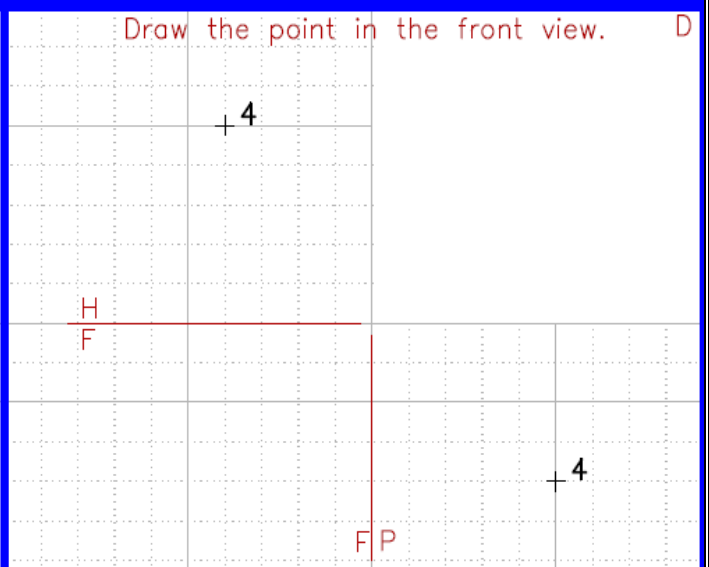
B Draw the point in the top view.



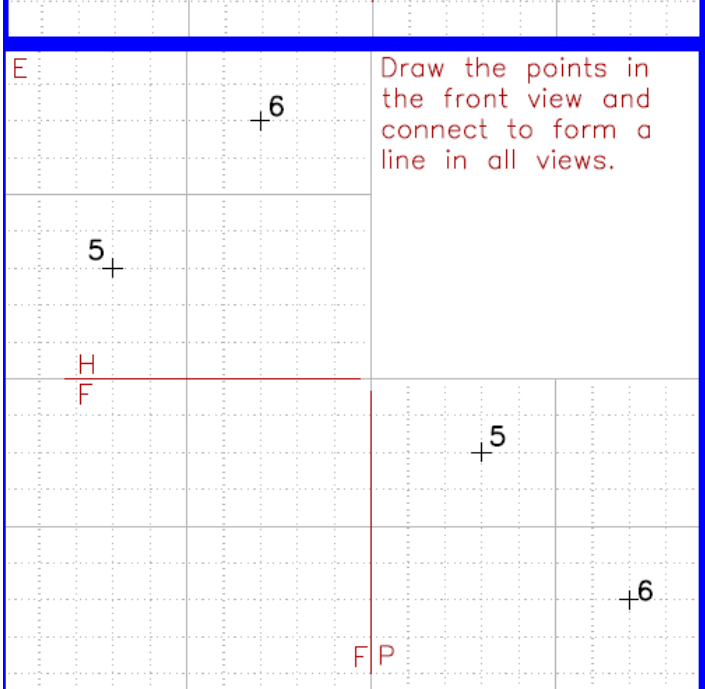
C Draw the point in the right side view.



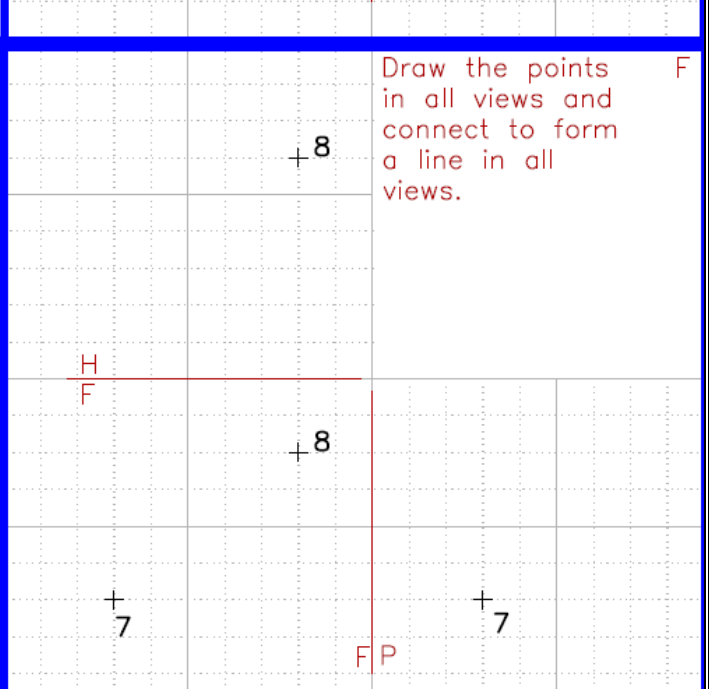
D Draw the point in the front view.



E Draw the points in the front view and connect to form a line in all views.

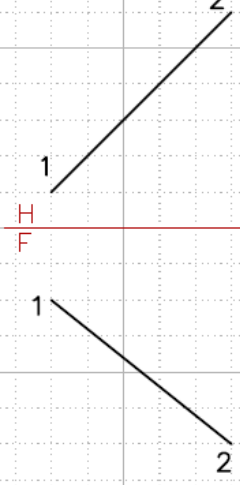


F Draw the points in all views and connect to form a line in all views.



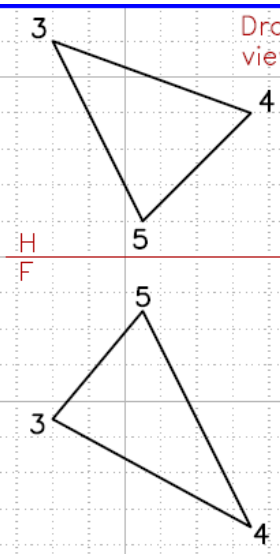
A

Draw the right side view of the line.



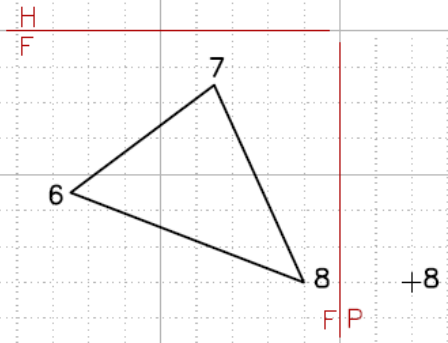
B

Draw the right side view of the plane.



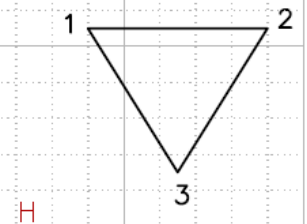
C

Draw the missing views of the plane so that it is a frontal plane.



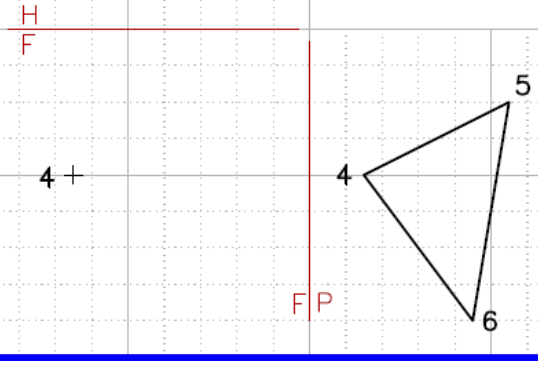
D

Draw the missing views of the plane so that it is a horizontal plane.



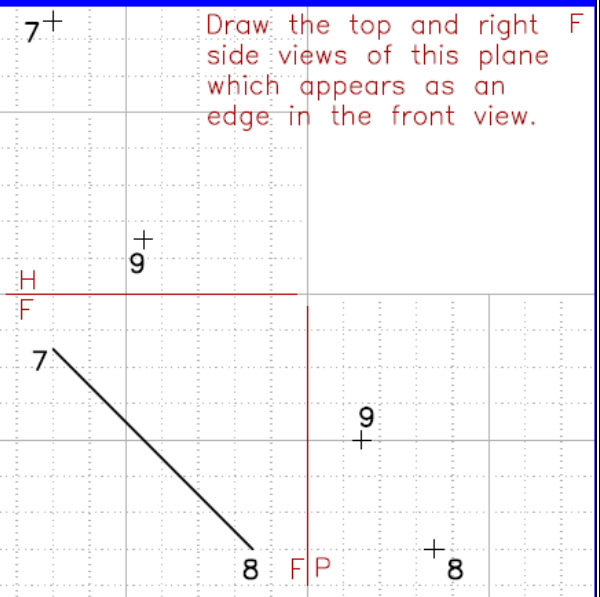
E

Draw the missing views of the plane so that it is a profile plane.



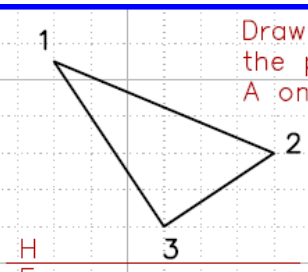
F

Draw the top and right side views of this plane which appears as an edge in the front view.

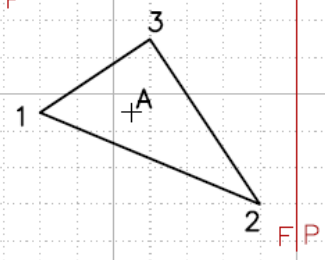


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	68

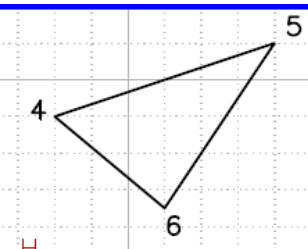
A



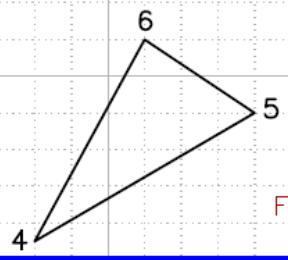
Draw the right side view of the plane and locate point A on it in all views.



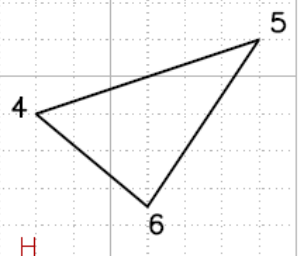
B



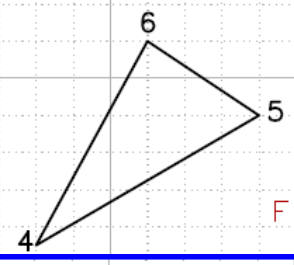
Draw the right side view of the plane and draw two horizontal lines on it in all views.



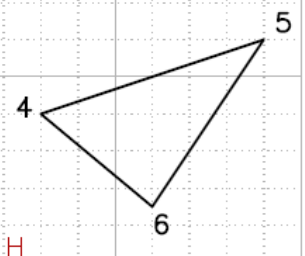
C



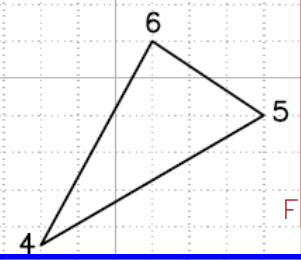
Draw the right side view of the plane and draw two frontal lines on it in all views.



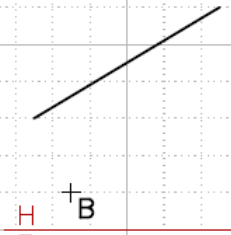
D



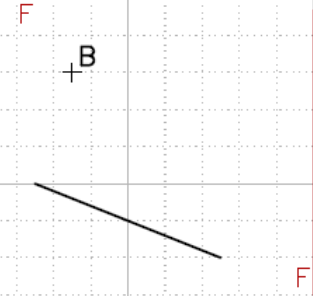
Draw the right side view of the plane and draw two profile lines on it in all views.



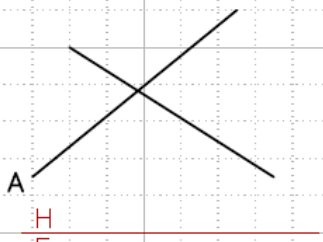
E



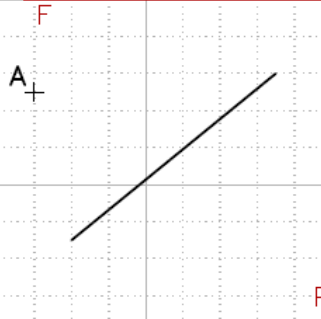
Draw the right side view of the line and a line through B in all three views that is parallel to the original line.



F

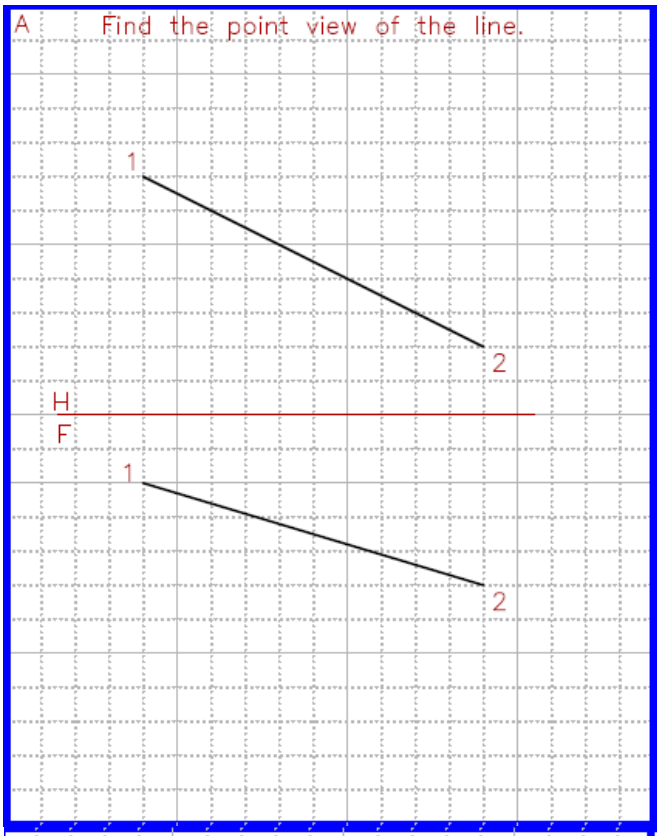


Draw three views of these intersecting lines.

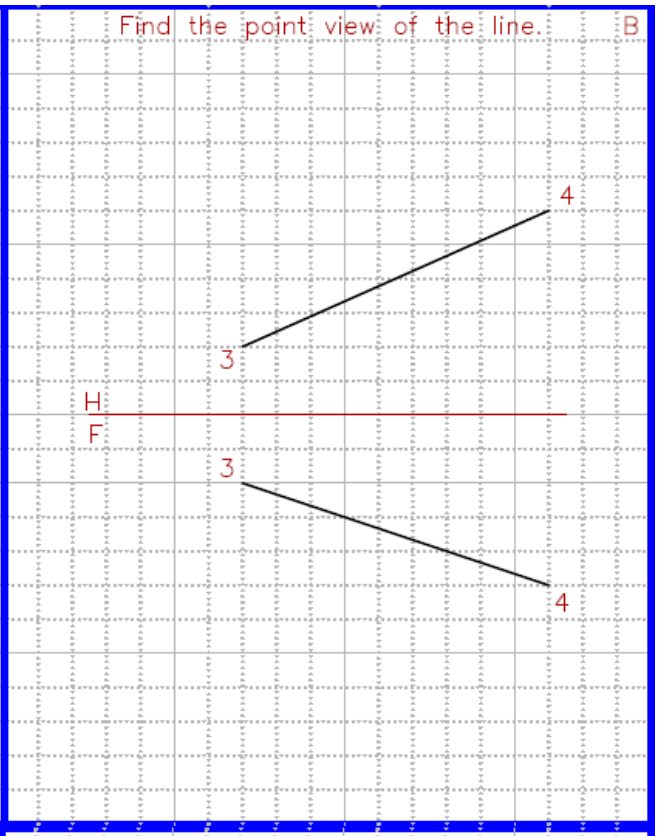


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	69

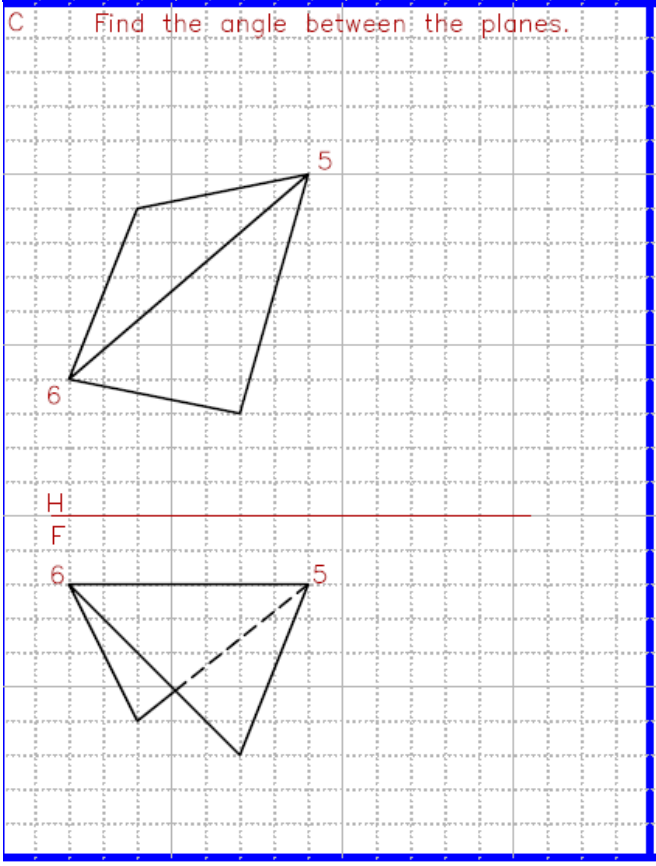
A Find the point view of the line.



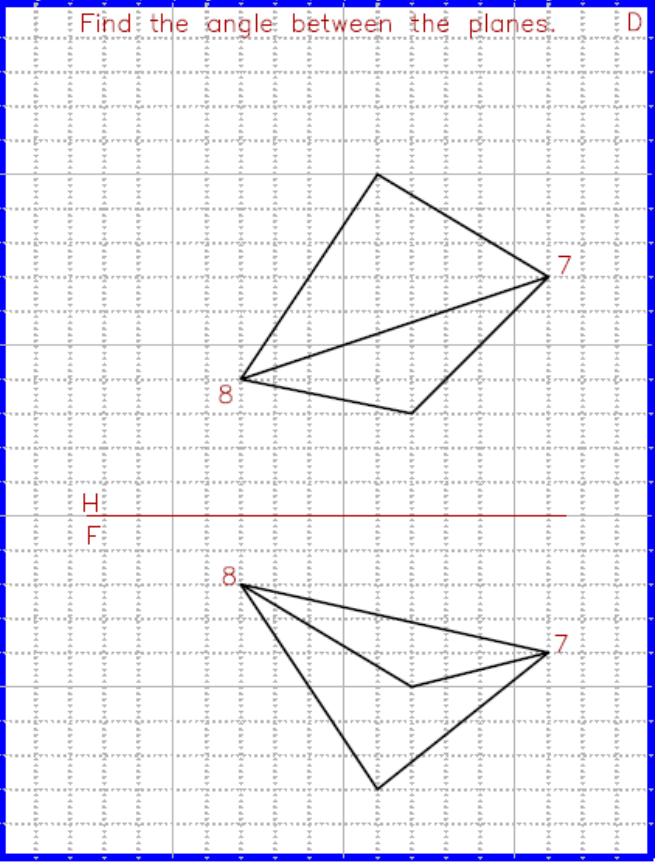
Find the point view of the line. B



C Find the angle between the planes.

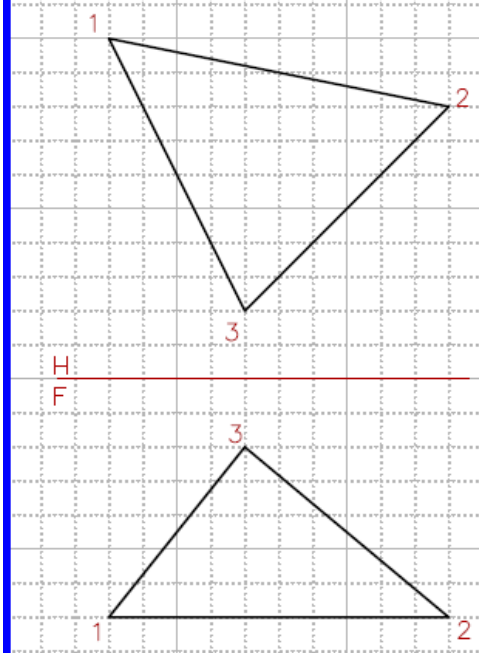


Find the angle between the planes. D

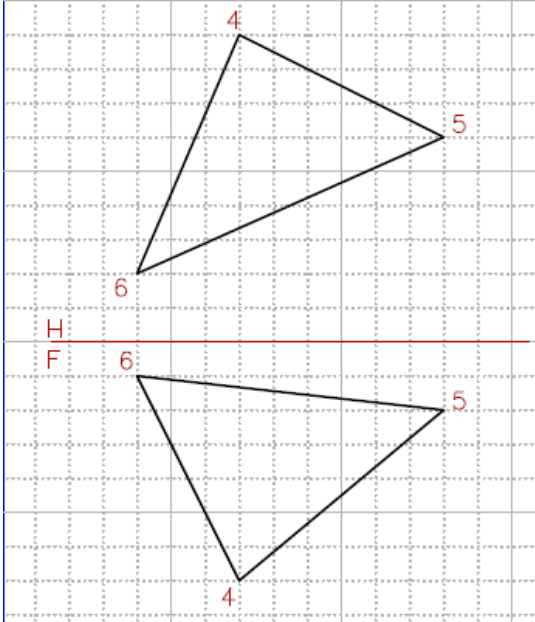


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	70

A Find the true–size view of the plane.

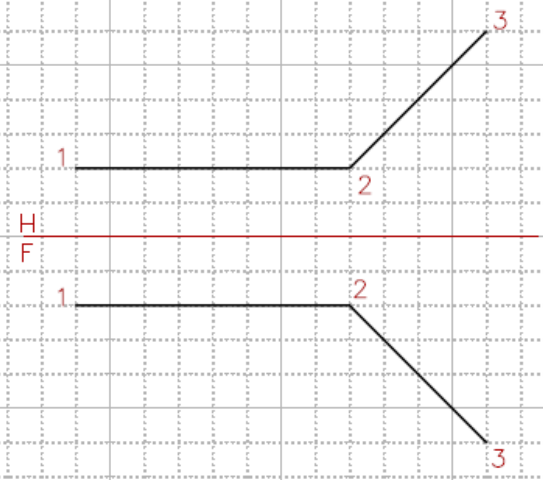


B Find the true–size view of the plane.

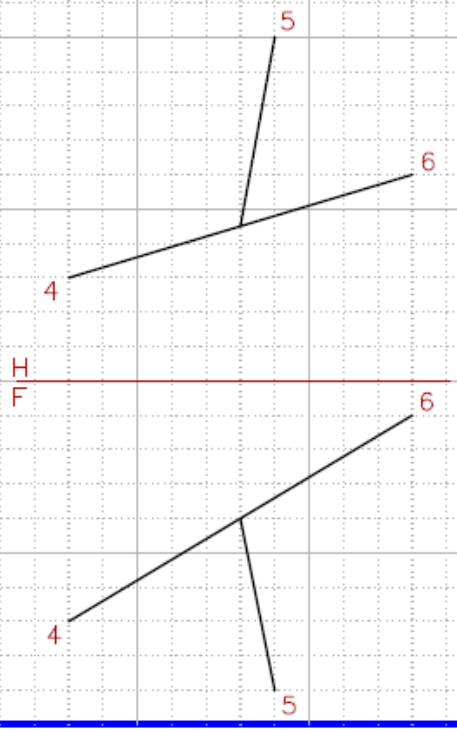


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	71

A Find the angle between the lines.



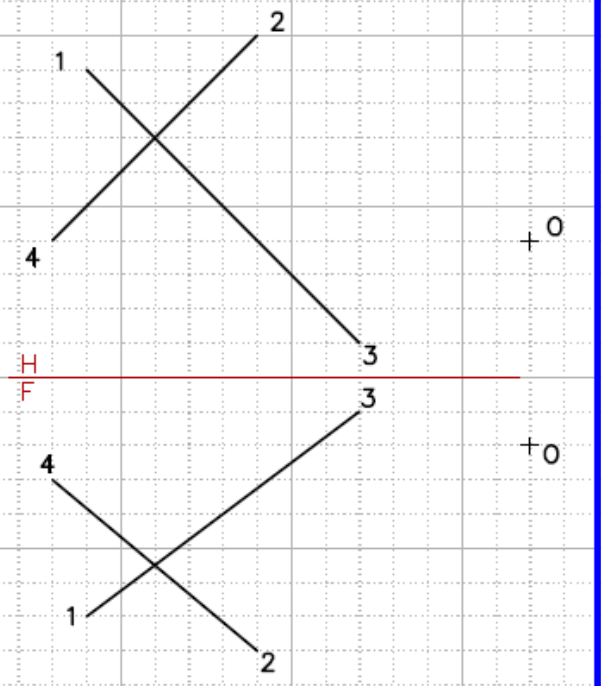
B Find the angle between the lines.



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	72

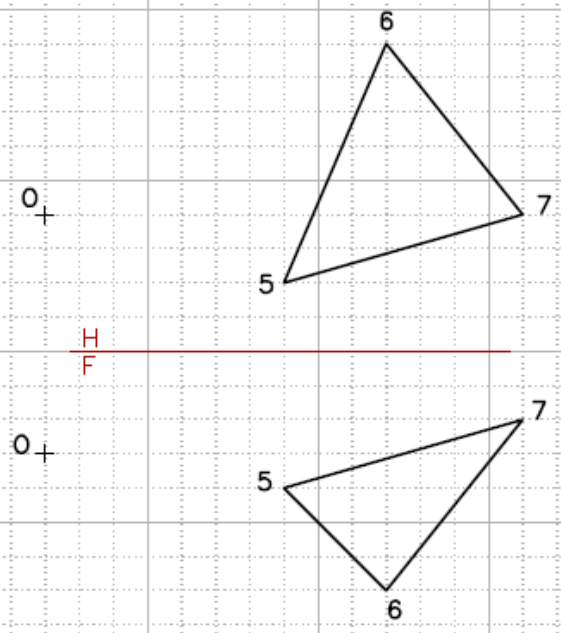
A

Draw a 1.50–inch line starting at point O and parallel to the plane formed by the intersecting lines.



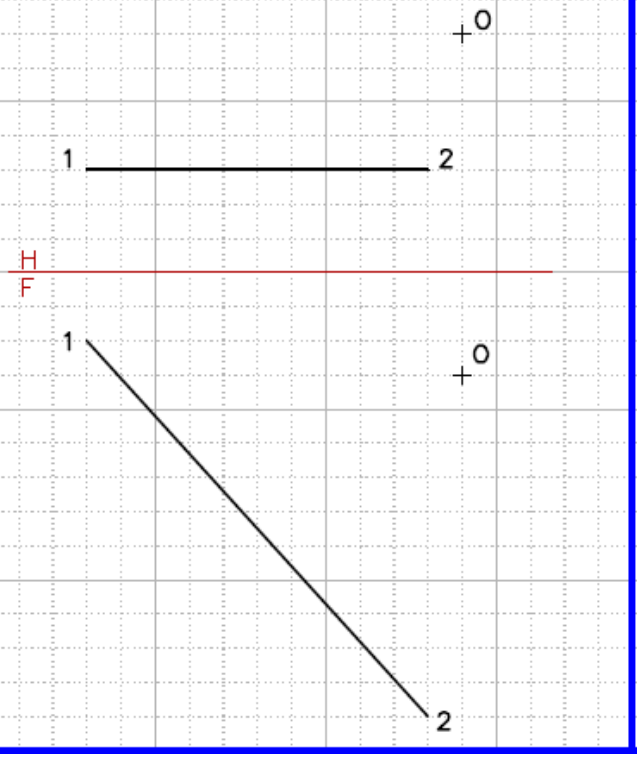
B

Draw a 1.50–inch line starting at point O and parallel to the plane.



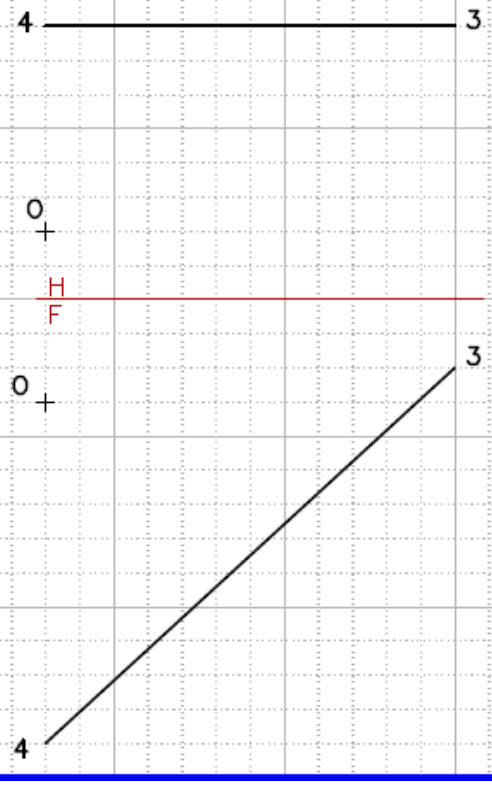
C

Draw a line from point O to the given line, and perpendicular to it.



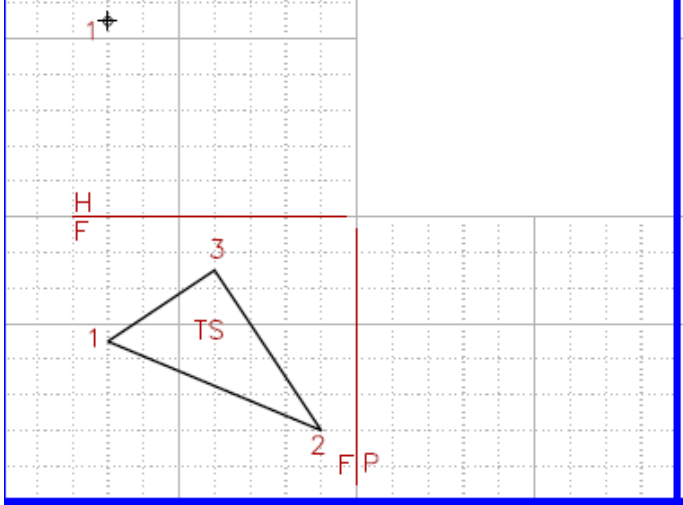
D

(same)

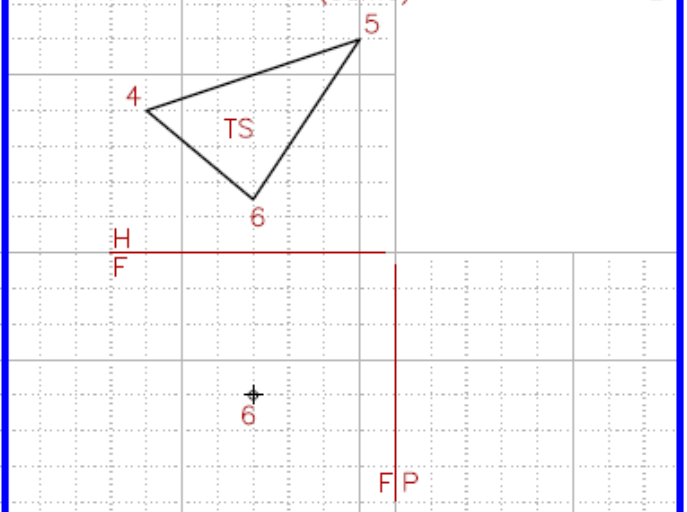


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	73

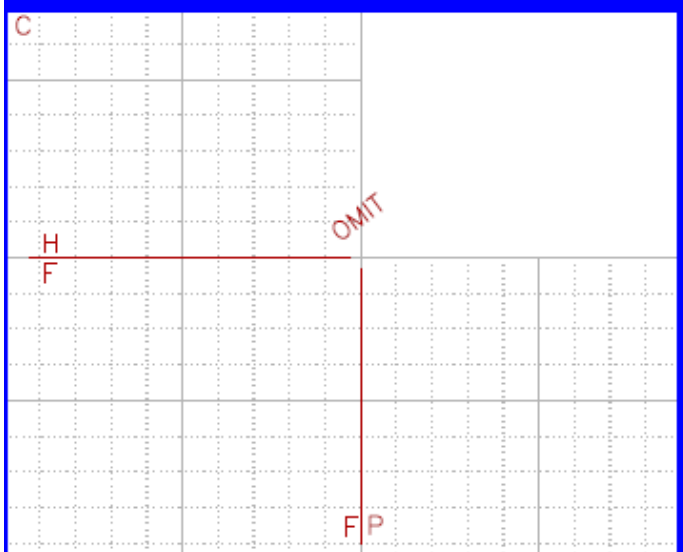
A Draw the missing views of the plane.



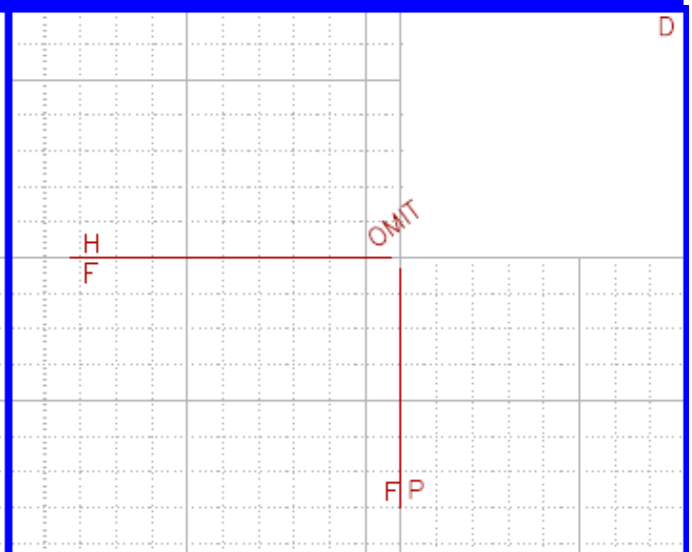
B (same)



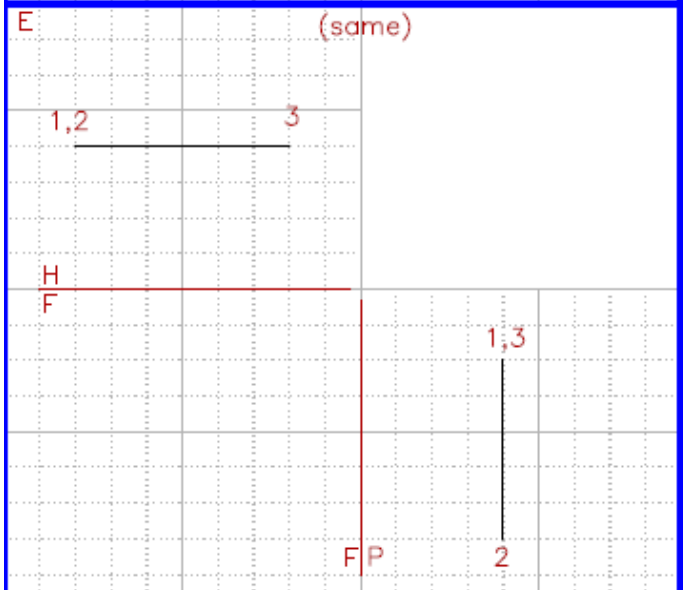
C



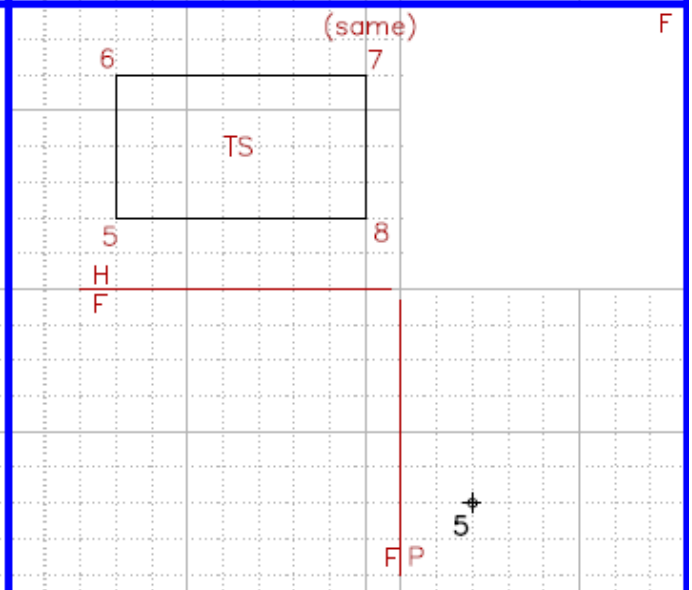
D



E (same)



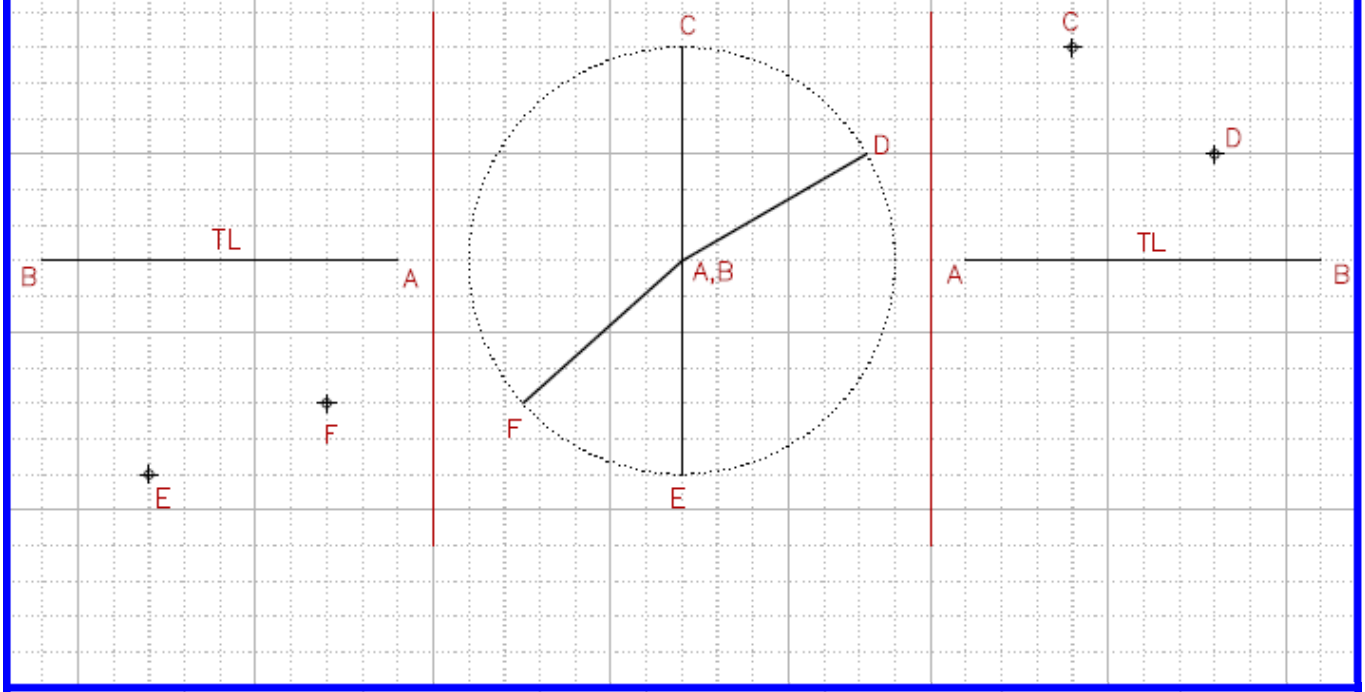
F (same)



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	74

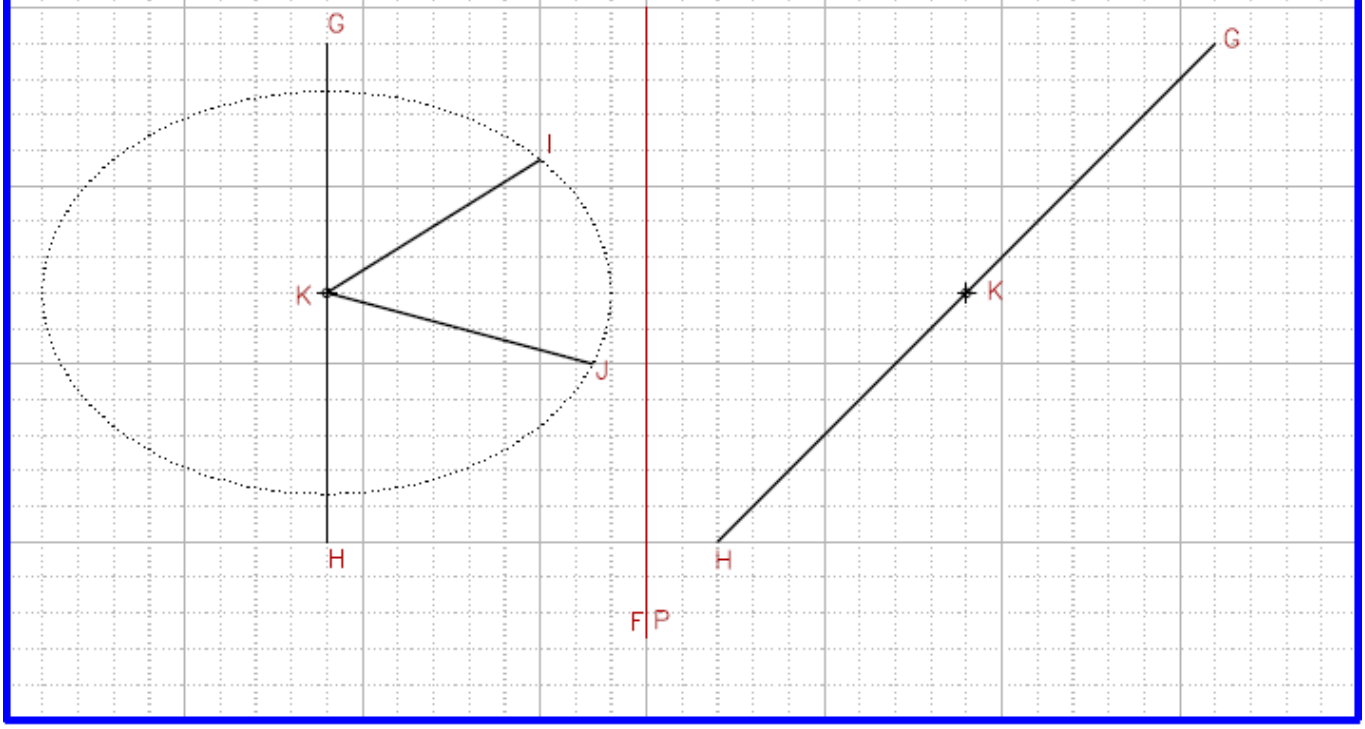
A

Axle A–B is shown in both side views, and four "spokes" are shown in the front view. Draw each of the spokes in both side views



B

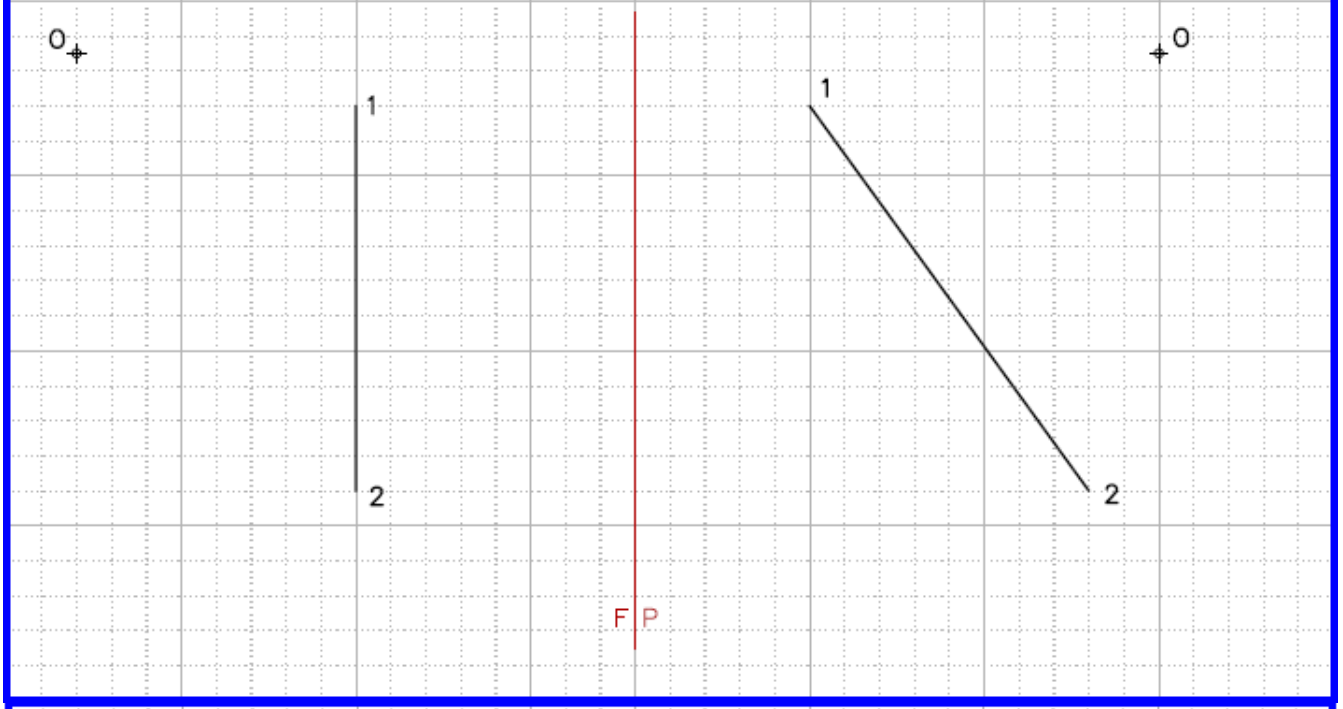
Perpendicular spokes I–K and J–K are shown in the front view. Show them in the side view.



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	75

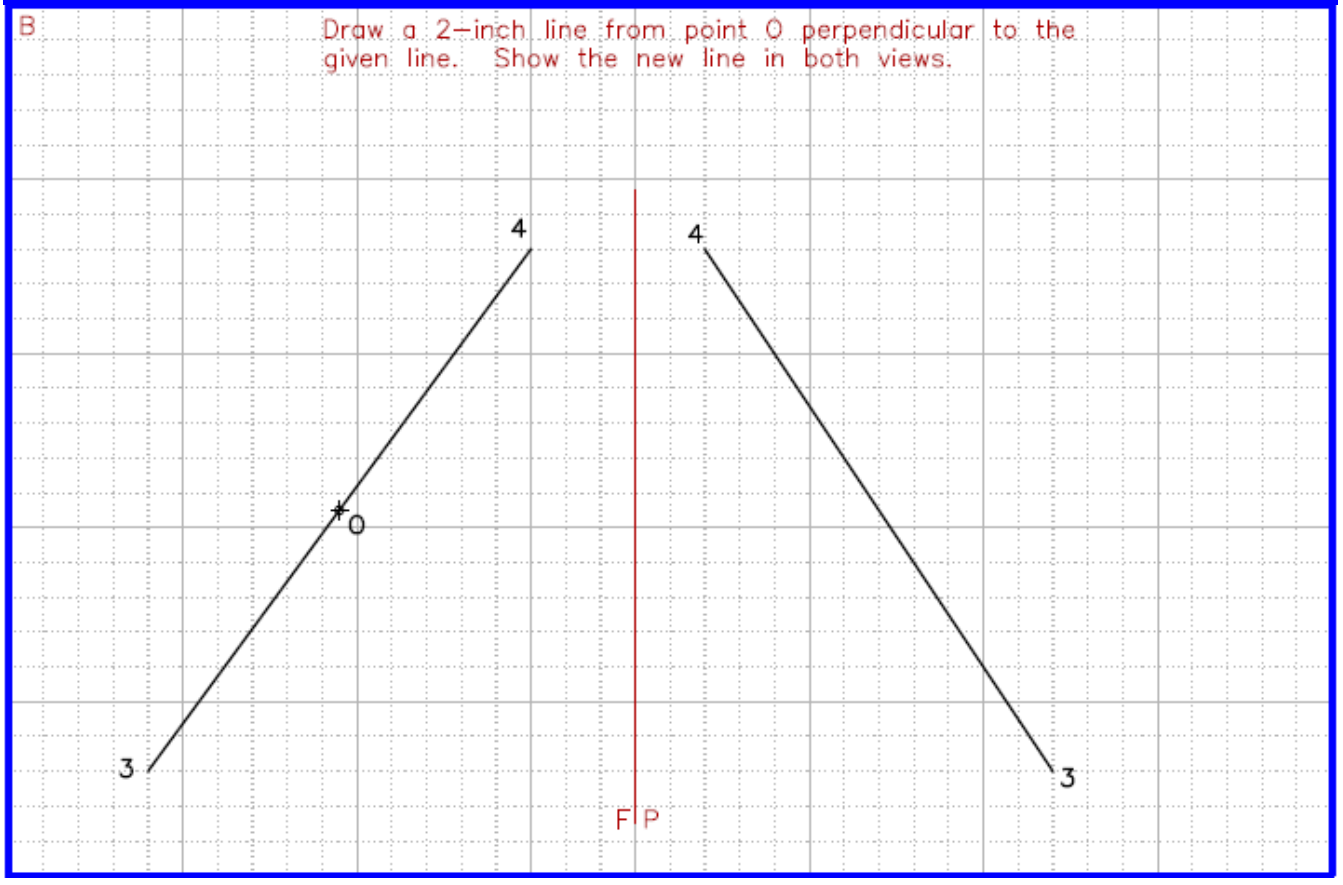
A

Draw a line from point O perpendicular to the given line. Show the new line in both views.



B

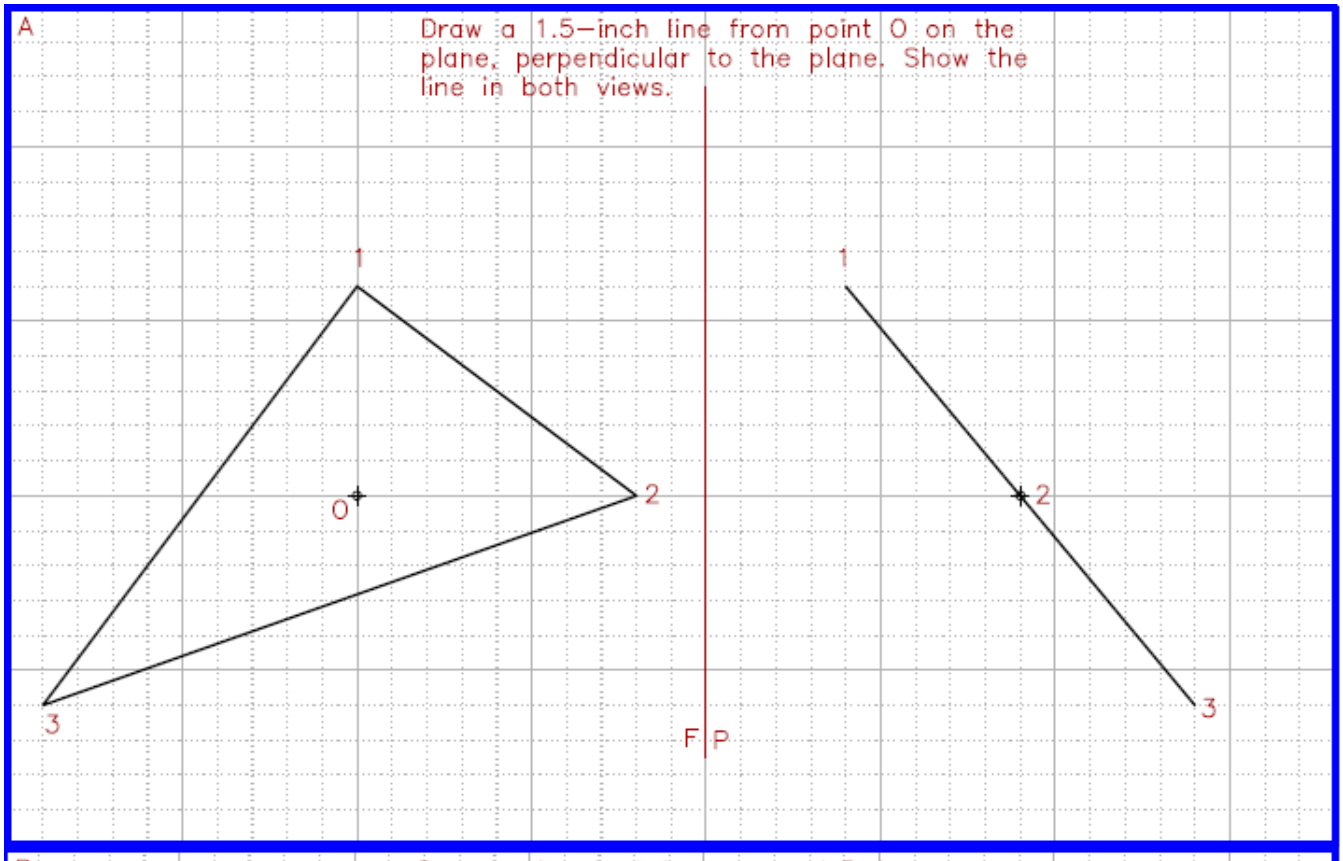
Draw a 2–inch line from point O perpendicular to the given line. Show the new line in both views.



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	76

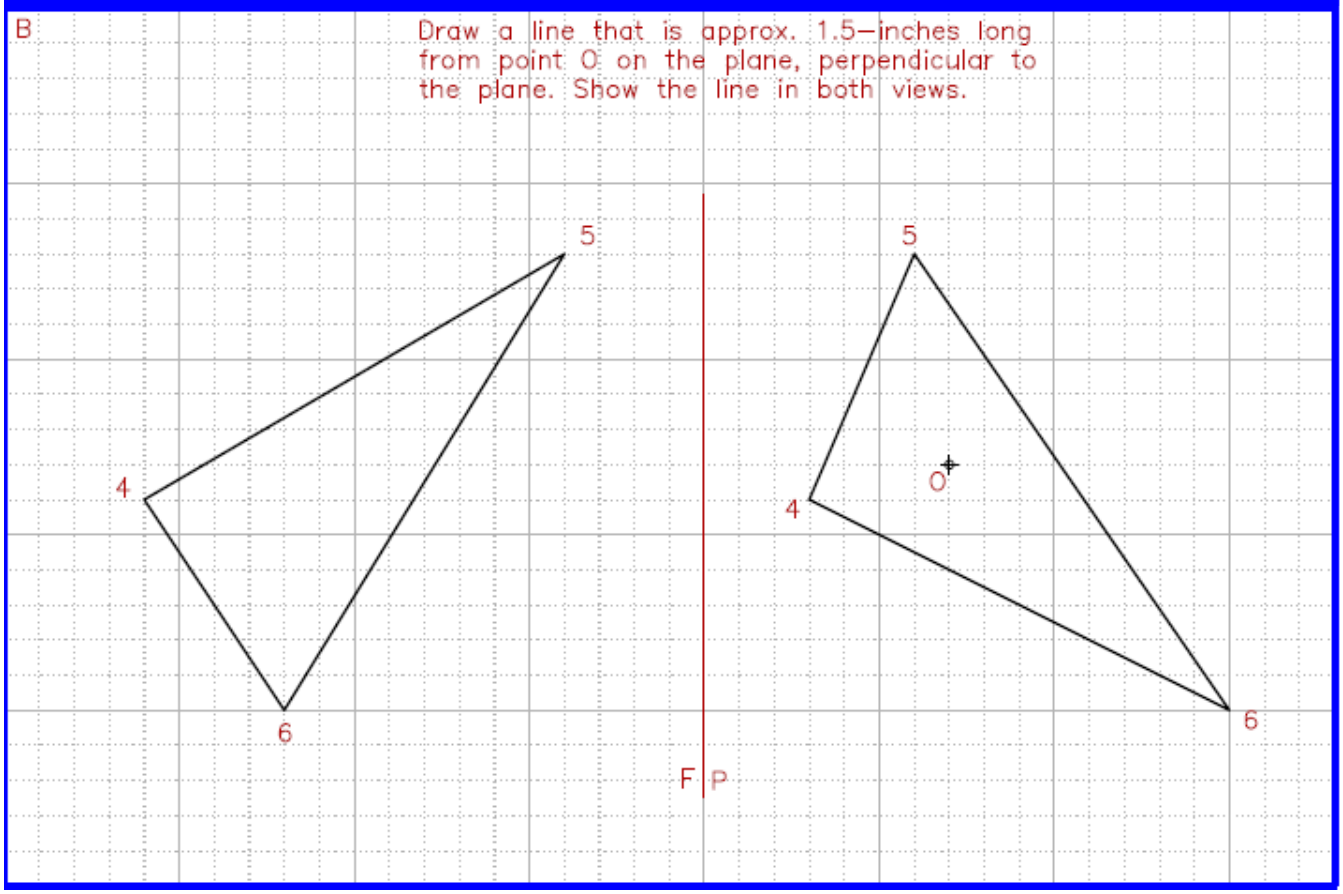
A

Draw a 1.5–inch line from point O on the plane, perpendicular to the plane. Show the line in both views.



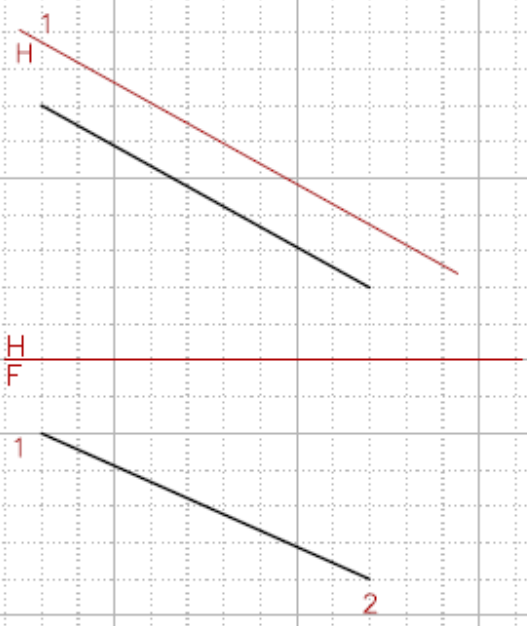
B

Draw a line that is approx. 1.5–inches long from point O on the plane, perpendicular to the plane. Show the line in both views.



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	77

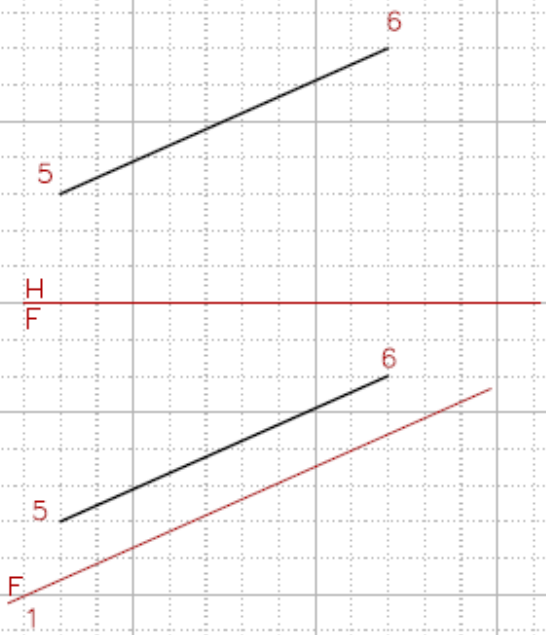
A



Create a true length view of the line in an auxiliary view.
Also calculate the true length using the Pythagorean theorem.

B

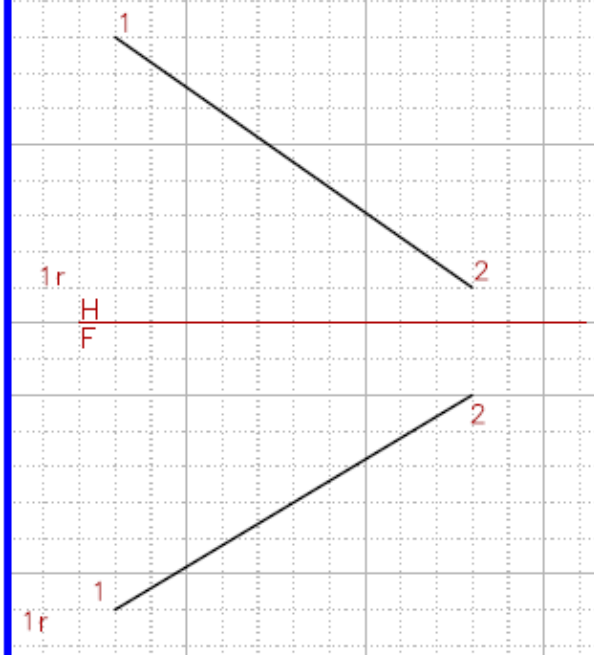
C (same)



D

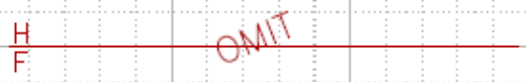
Descriptive Geometry Revision Problems	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**78**

A

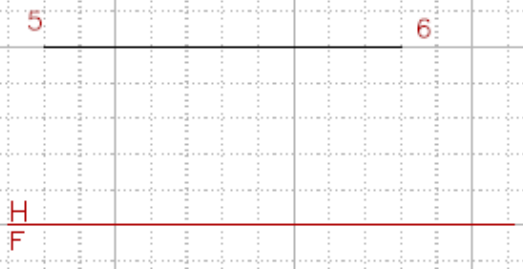


Find the true length of the line using a true-length diagram.

B

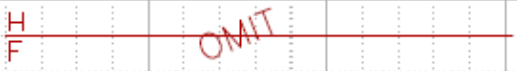


C

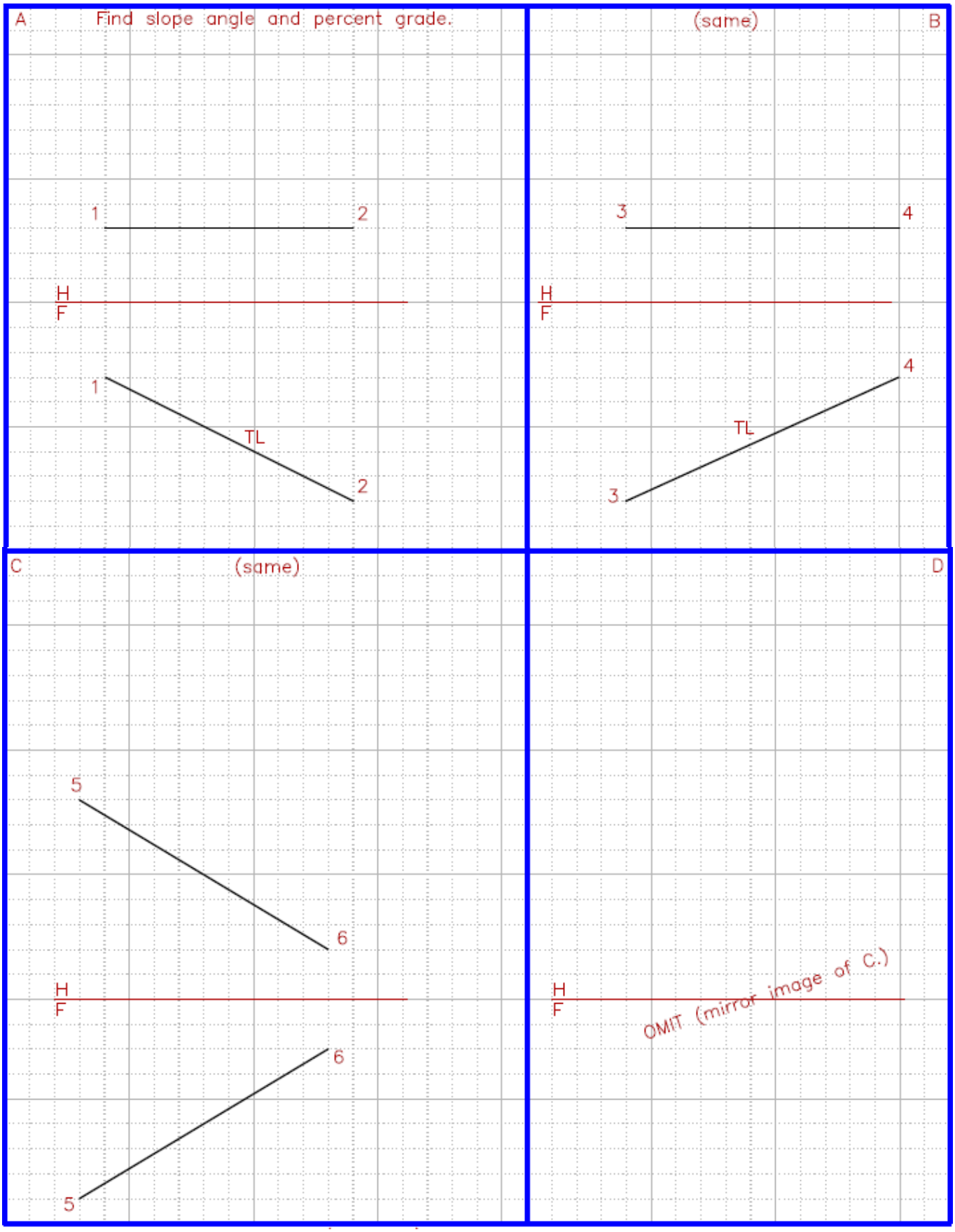


Create a point view of the line in an auxiliary view.

D



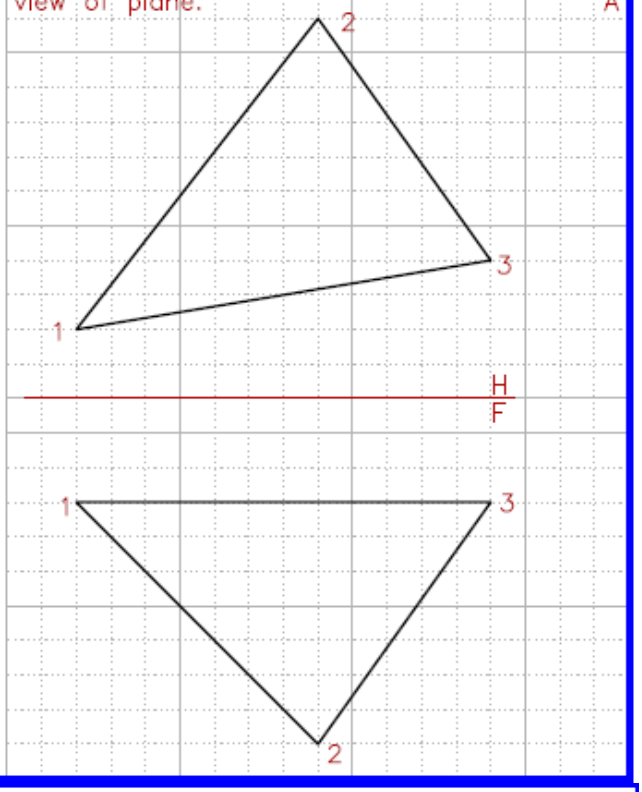
Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	79



Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	80

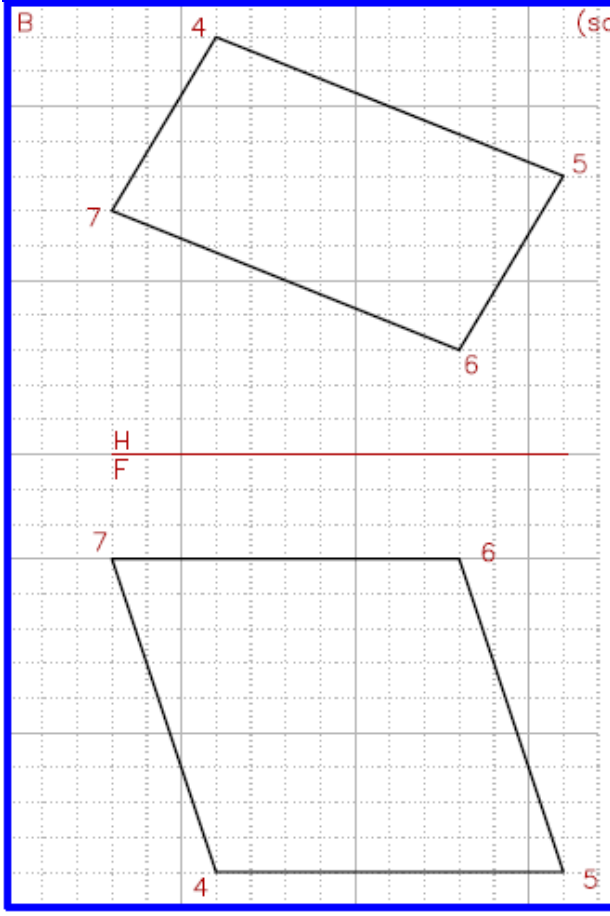
Create edge view of plane.

A



B

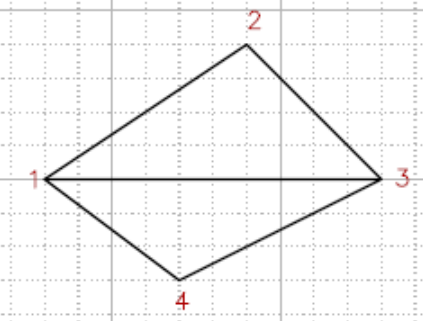
(same)

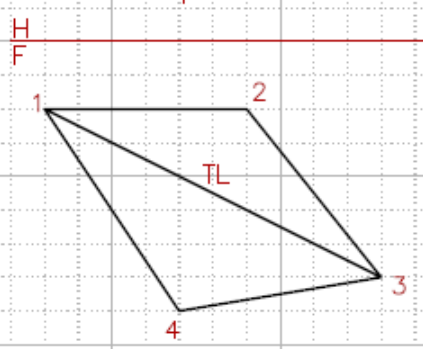


Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	81

A

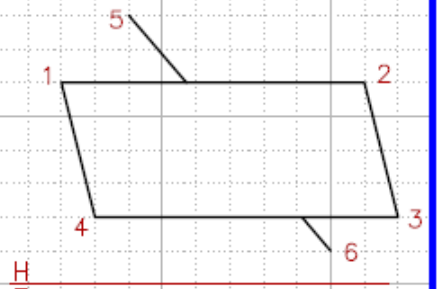
Find the angle between the planes.

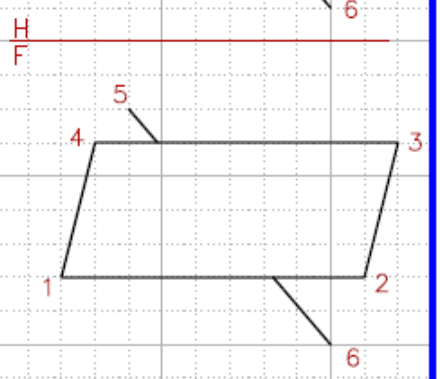




B

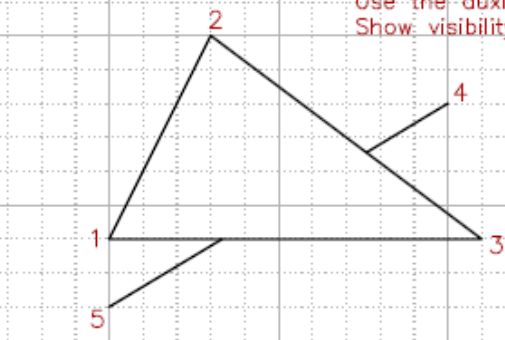
Find the point of intersection between the line and plane.
Use the cutting plane method.
Show visibility.

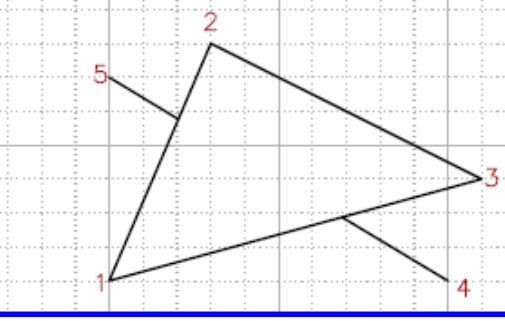




C

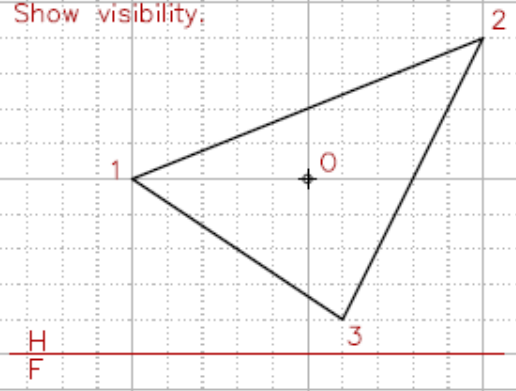
Find the point of intersection between the line and plane.
Use the auxiliary view method.
Show visibility.

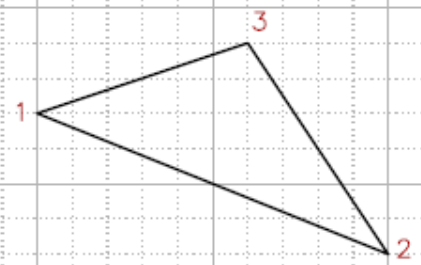




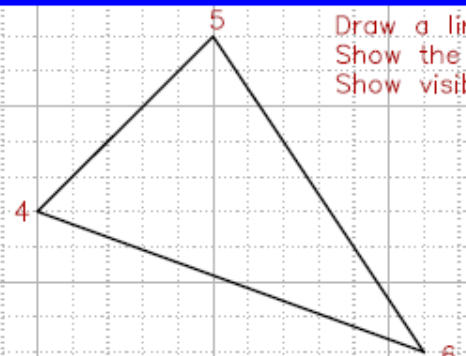
Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	82

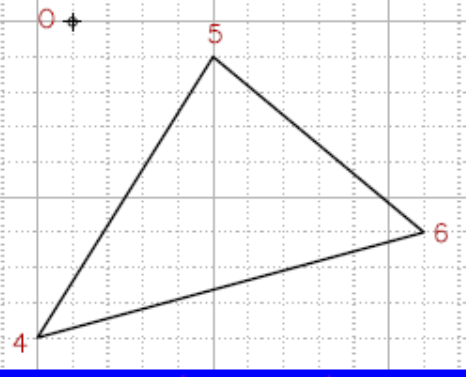
A Create a 1—inch line perpendicular to the plane from point O. (Point O is on the plane.)
Show the new line in all views.
Show visibility.





B Draw a line from point O perpendicular to the plane.
Show the line in all views.
Show visibility.

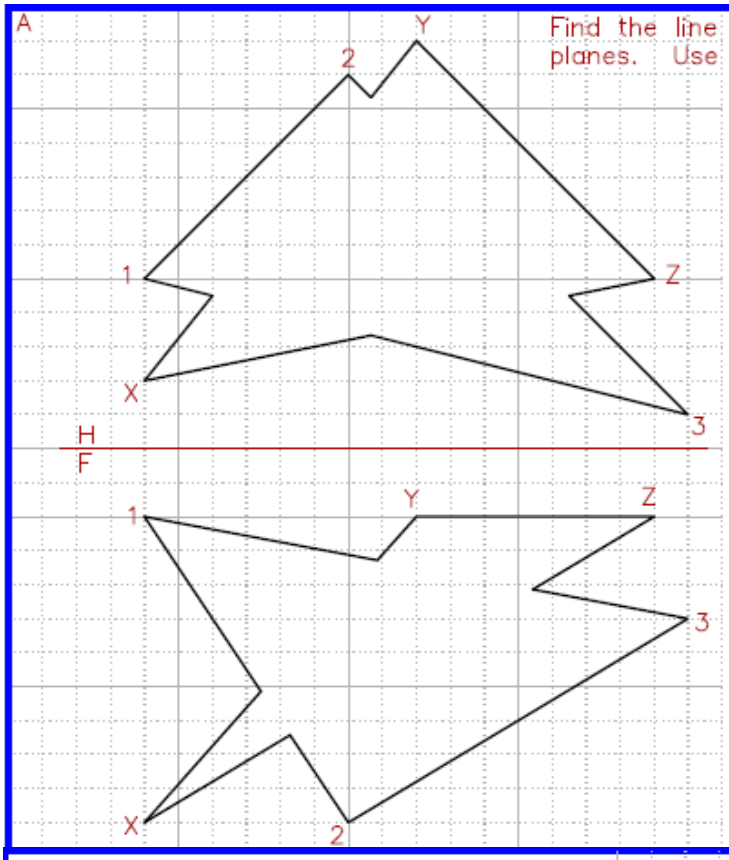




Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	83

A

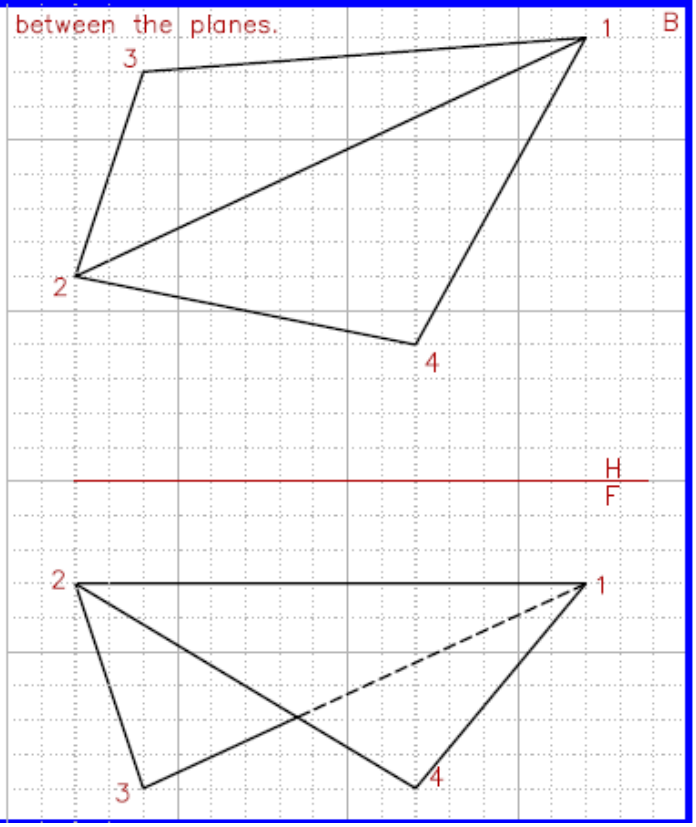
Find the line of intersection between the two planes. Use the auxiliary view method.



H
1

B

Find the angle between the planes.

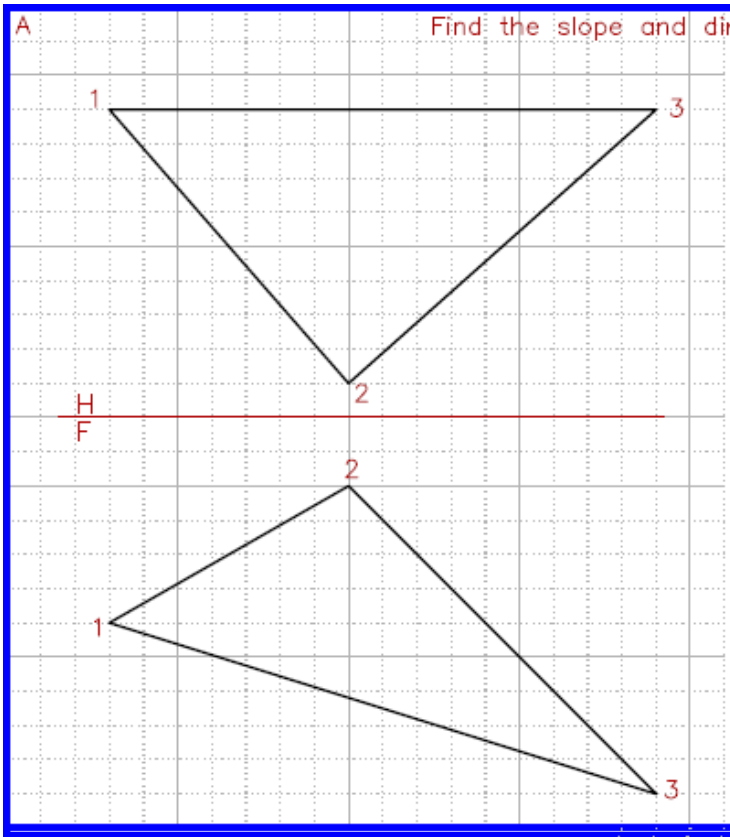


H
1

Descriptive Geometry Revision Problems	NAME : _____ FILE No : _____	DATE: _____	84

A

Find the slope and direction of slope.

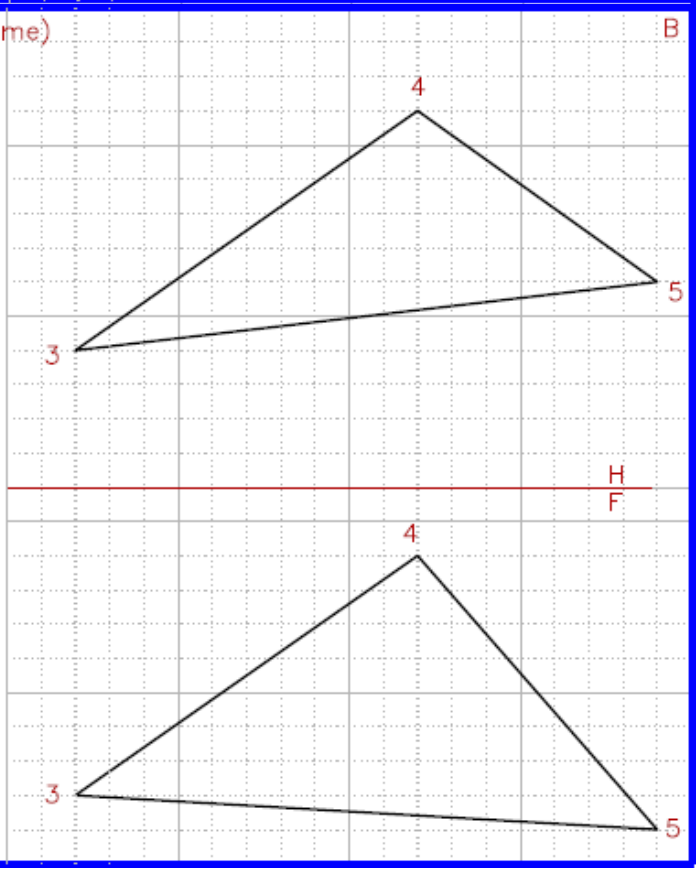


H
1

(same)

B

1 H



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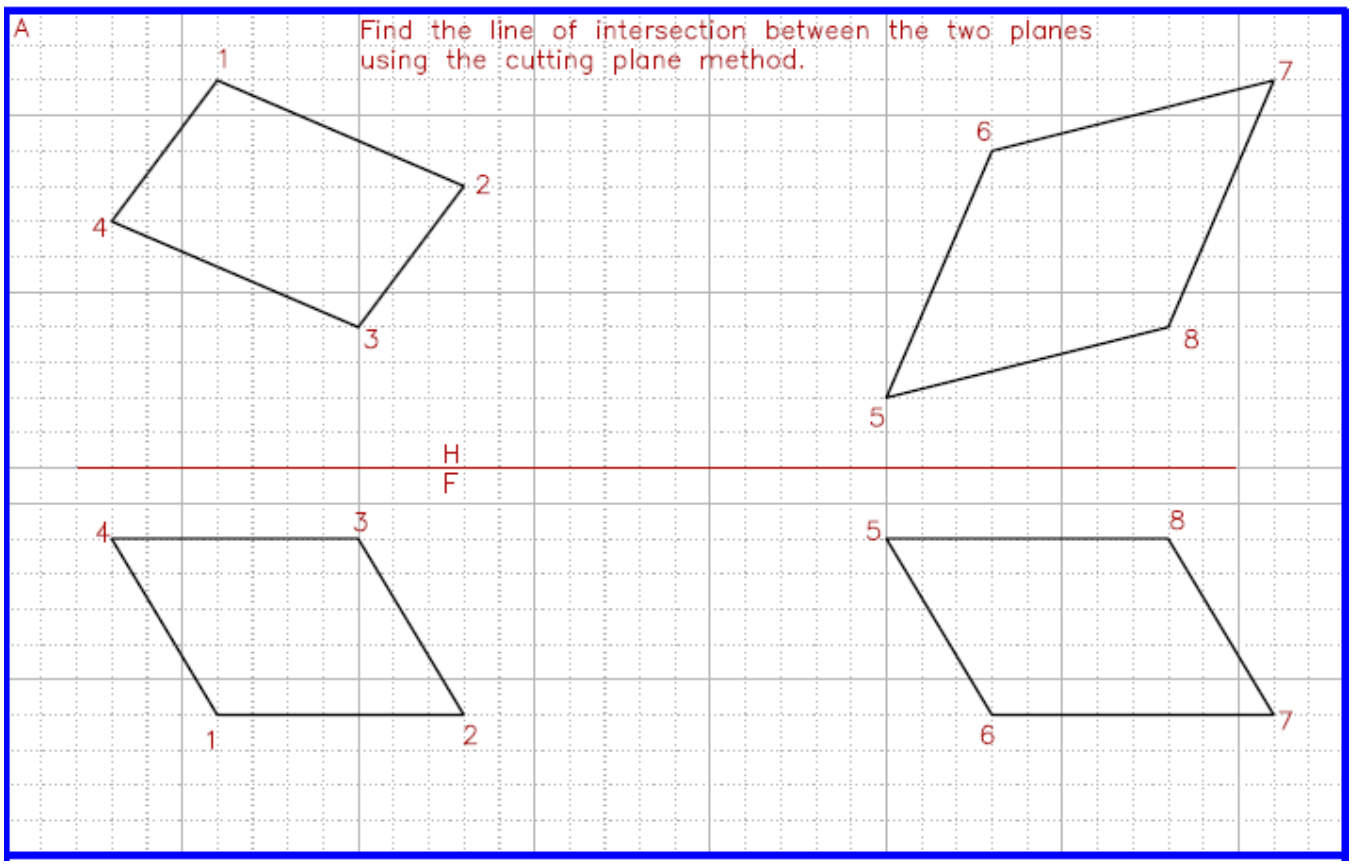

Descriptive Geometry Revision Problems	**NAME :** _____ **FILE No :** _____	**DATE:** _____	**86**

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	NAME : _____ FILE No : _____	DATE: _____	89

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	NAME : _____ FILE No : _____	DATE: _____	92

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	NAME : _____ FILE No : _____	DATE: _____	96

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