

CHAPTER 3 MULTIVIEW DRAWINGS

The purpose of a working drawing is to graphically describe the design of an item to the industrial workers who will fabricate and assemble the product. The working drawings must show every part in detail so there will not have to be any guesswork about the manufacture of the product. Figure 3-1 shows a working drawing of a spindle. The two views, dimensions and notations describe the product.

Working drawings follow specific drawing rules called *standards*. These drafting standards are prescribed by ASME. The standards for working drawings are in the ASME publication Multi and Sectional View Drawings Y14.3.

ORTHOGRAPHIC PLANES OF PROJECTION

The layout and drawing of a multiview drawing is based on the projection of the object to be drawn to a picture plane (Figure 3-2). The picture plane is placed

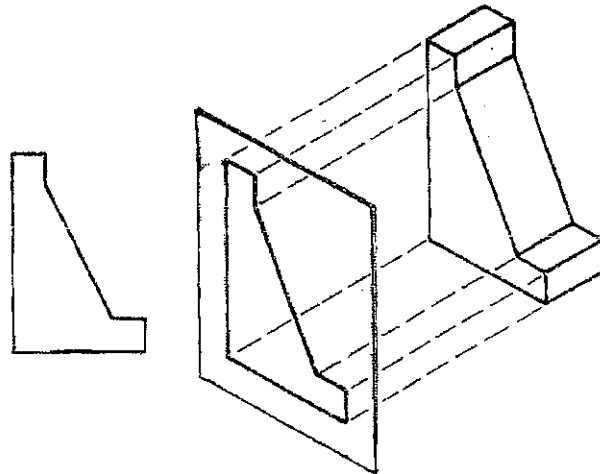


Figure 3-2 Projecting the front view of the plane of projection.

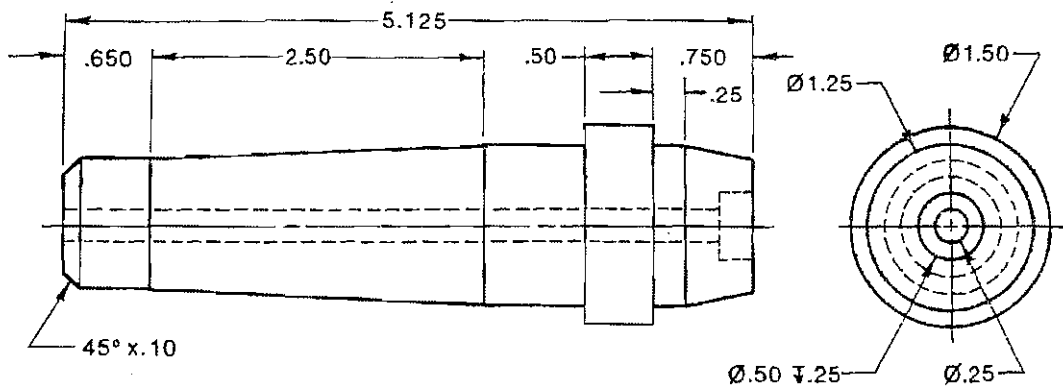


Figure 3-1 An example of a working document of an arbor spindle.

MULTIVIEW SECTION

It is important that the working drawing describe the item with a minimum of views. Extra views will increase drawing time and costs. The rule to follow is to use only the minimum number of views necessary to fully describe the item. A working drawing of a thin gasket will only require one view. The door stoop in Figure 3-5 requires two views to describe its shape. The bearing support in Figure 3-6 uses three views to thoroughly describe its shape. Most working drawings will require three views. It is possible to project up to six views of an object (Figure 3-7).

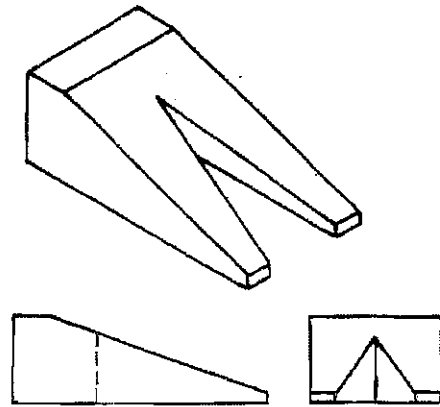


Figure 3-5 Two-view drawing of a door stop.

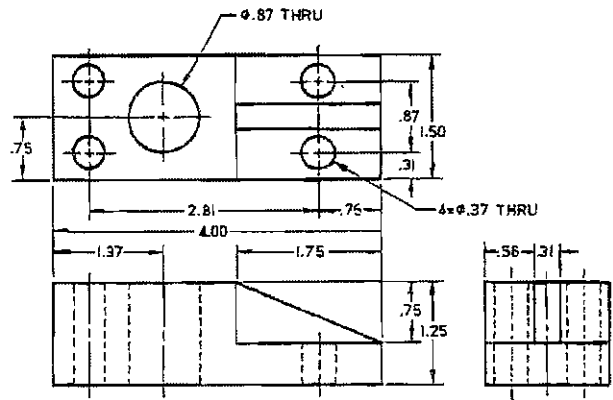


Figure 3-6 Three-view drawing of a bearing bracket.

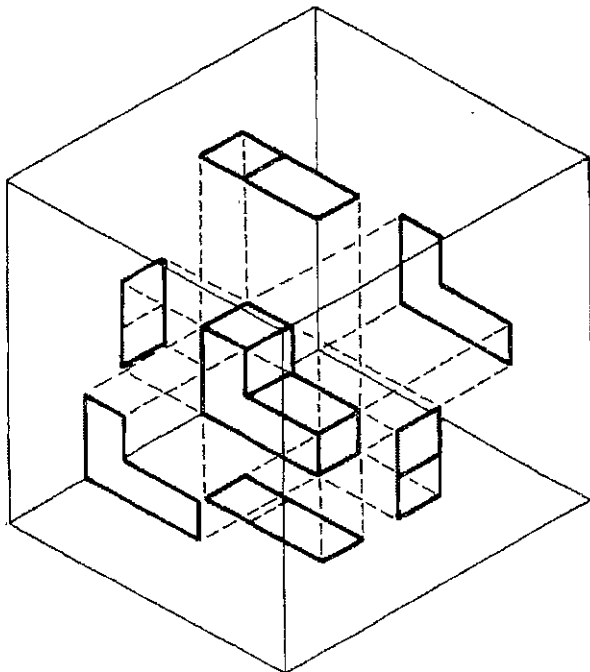
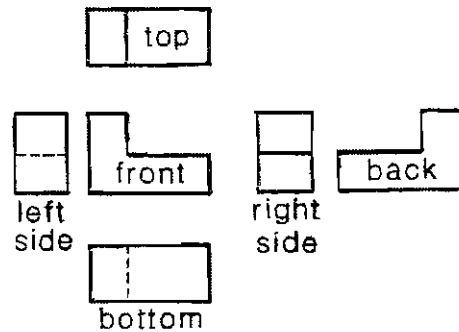


Figure 3-7 It is possible to have a six normal-view projection.



FIRST-ANGLE PROJECTION

The other method of projection is called *first-angle projection*. This method of projection is used primarily in countries outside the United States. An example of

first angle projection is shown in Figure 3-10. Note the symbol that indicates the use of third-angle projection for the drawing's views.

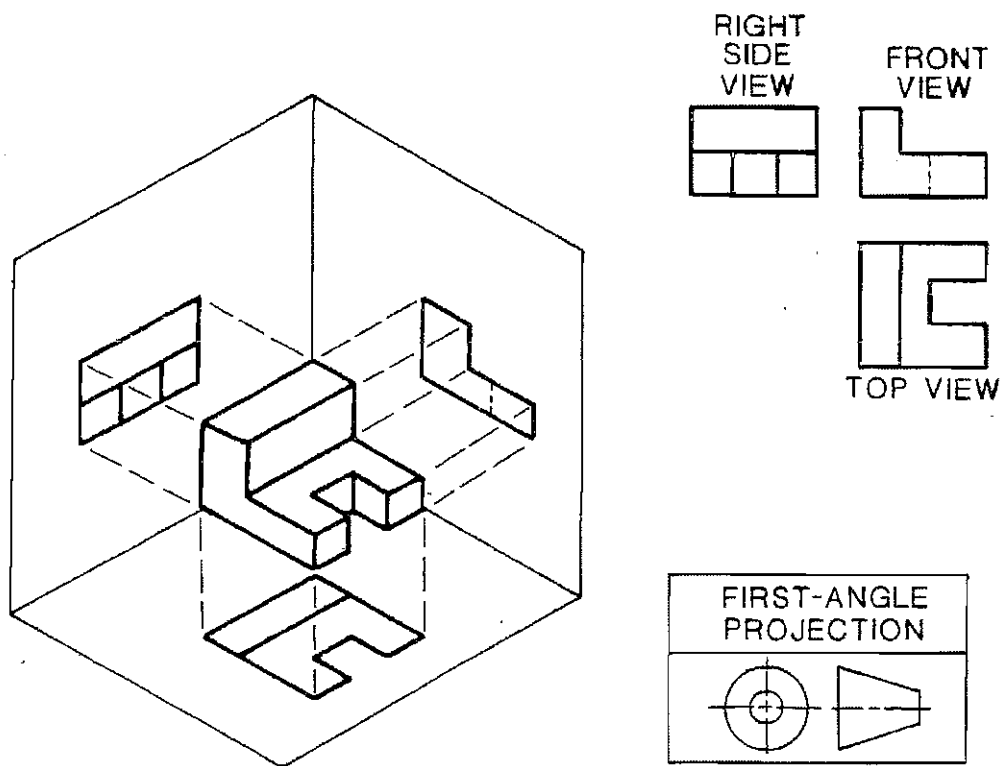


Figure 3-10 Example of a first-angle orthographic projection.

PRE-ENGINEERING & COMPUTER-AIDED DESIGN

JIM MANDL – INSTRUCTOR

12200 15 MILE ROAD | STERLING HEIGHTS | MI | 48312

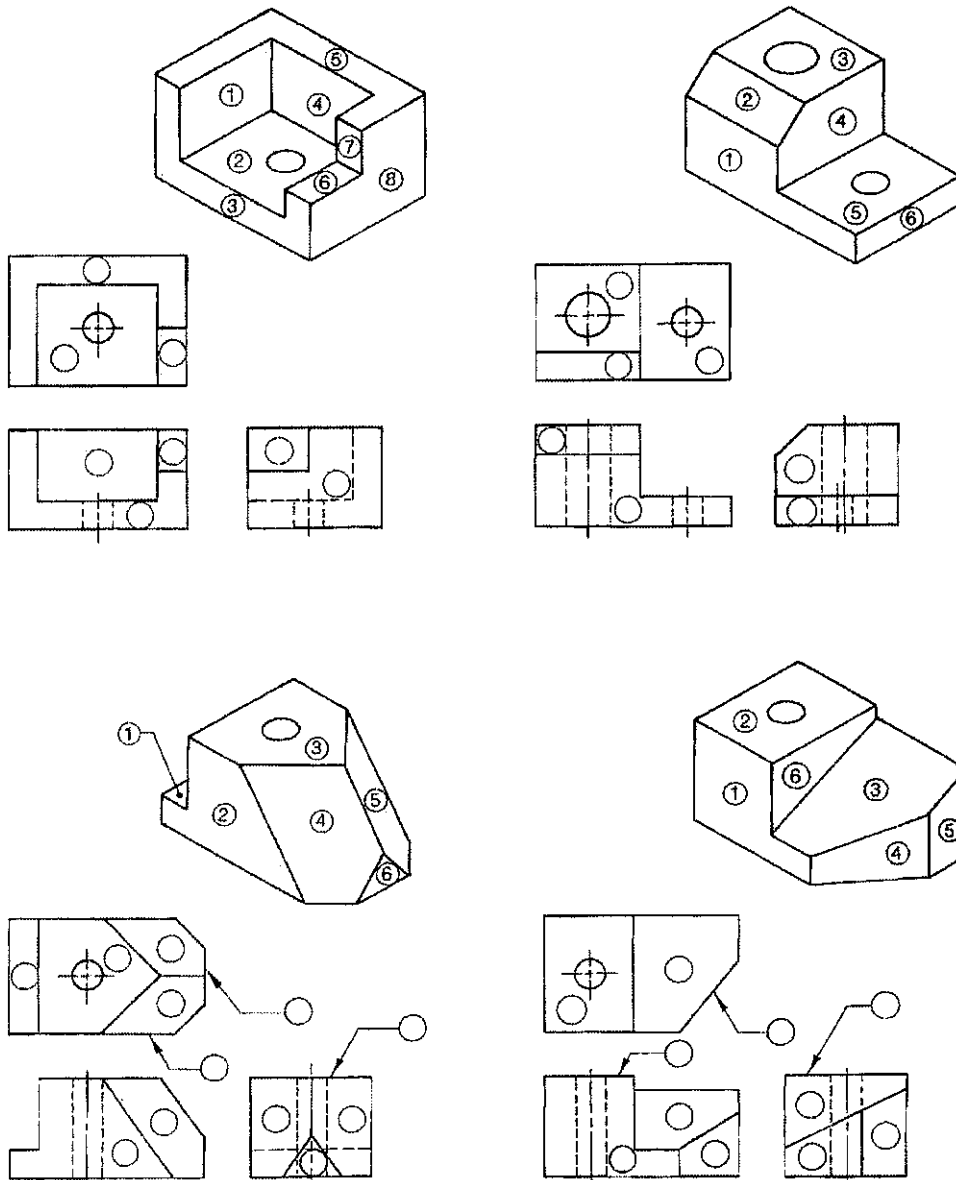
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SEGMENT 5 ~ Identifying Surfaces 1

Directions:

Place the number of the appropriate surface in the appropriate bubble on the orthographic drawing. One point for each correct bubble entry.



Student Name: _____ Block: _____

Score: ____/38

PRE-ENGINEERING & COMPUTER-AIDED DESIGN

JIM MANDL – INSTRUCTOR

12200 15 MILE ROAD | STERLING HEIGHTS | MI | 48312

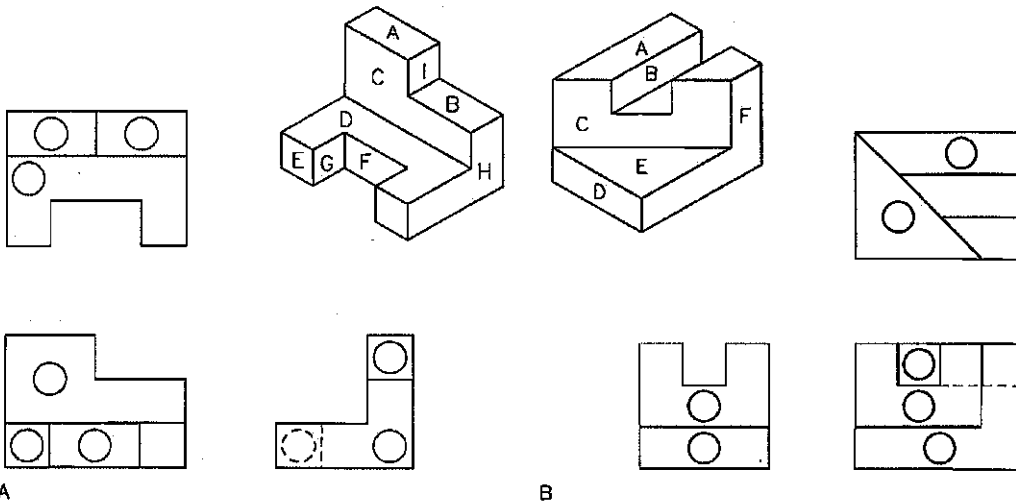
PHONE: (586) 825-2800 EXT. 17207 | JMANDL@WCSKIDS.NET



SEGMENT 5 ~ Identifying Surfaces 2

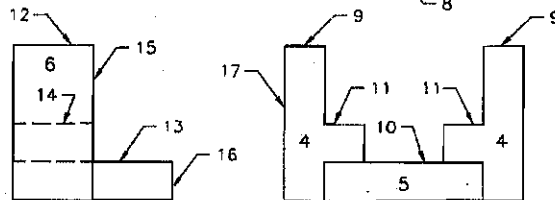
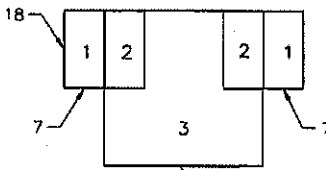
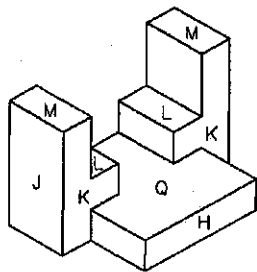
Directions:

Place the number of the appropriate surface in the appropriate bubble on the orthographic drawing. One point for each correct bubble entry.



A

B



	TOP	FRONT	L. SIDE
Q			
H			
J			
K			
L			
M			

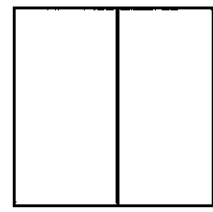
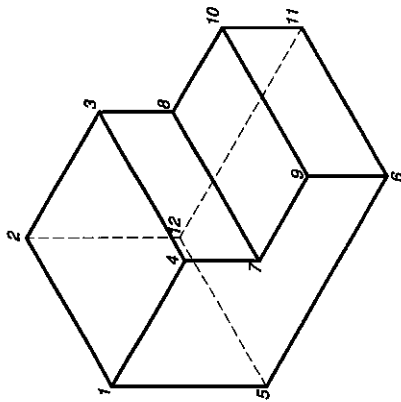
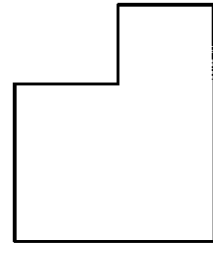
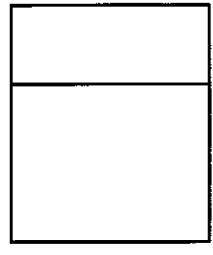
Student Name: _____ Block: _____

Score: ____/36

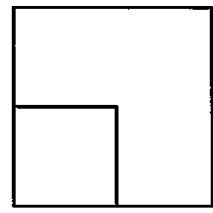
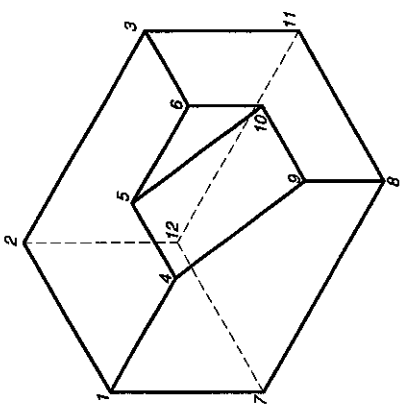
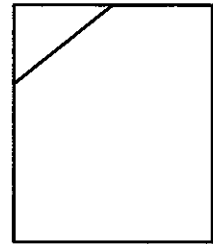
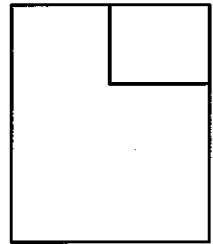
NUMBERING
DEMO

Directions: Number each point shown in the pictorial views to the principle views provided.

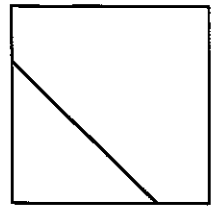
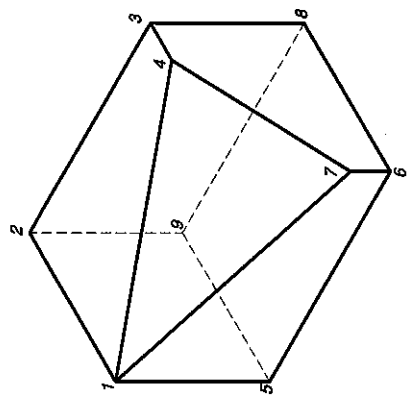
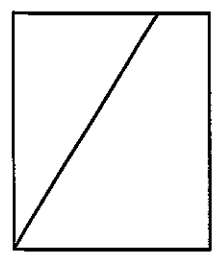
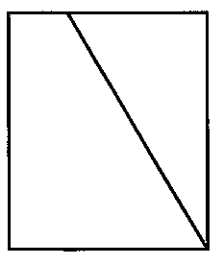
①



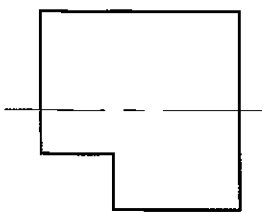
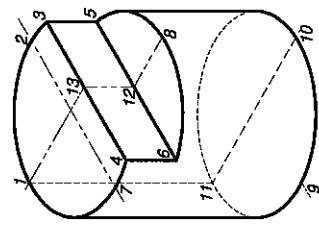
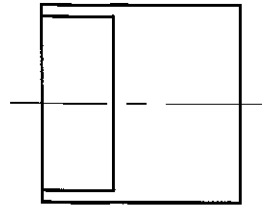
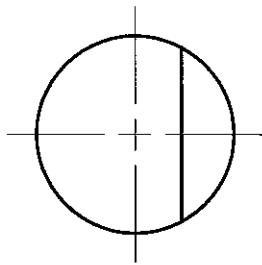
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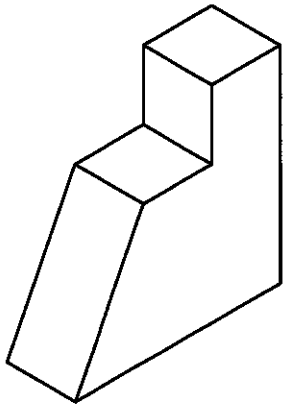
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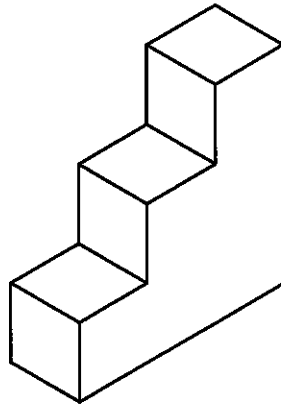
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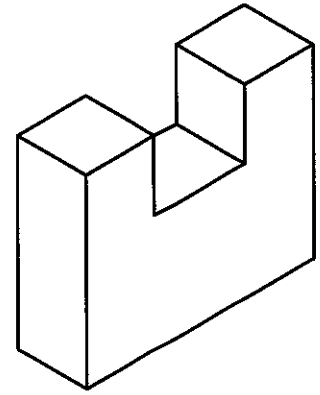
Directions: Match the Isometric Drawing to the Appropriate Orthographic Drawing.



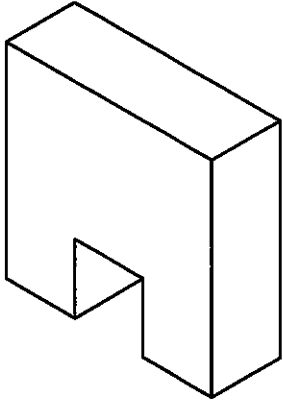
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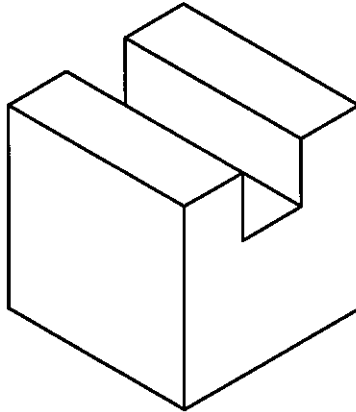
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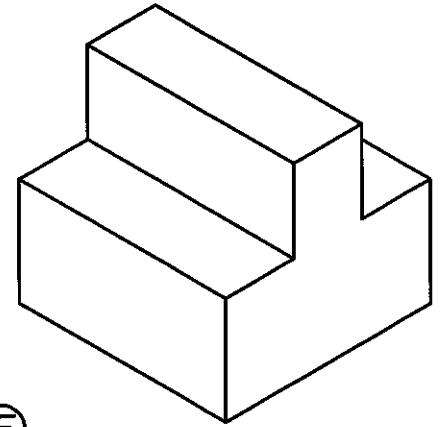
(C)



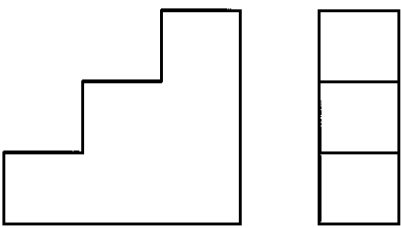
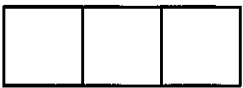
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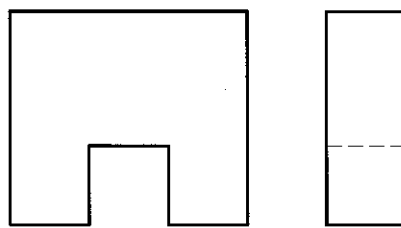
(E)



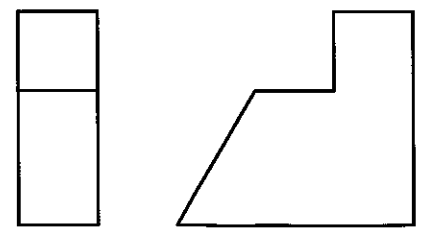
(F)



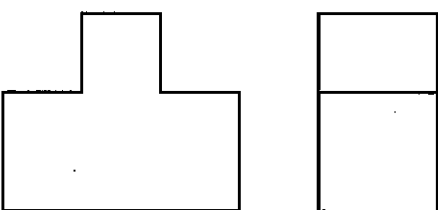
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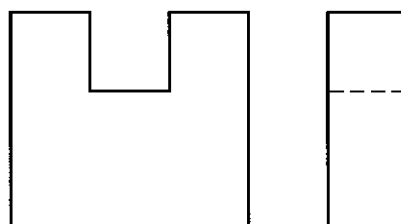
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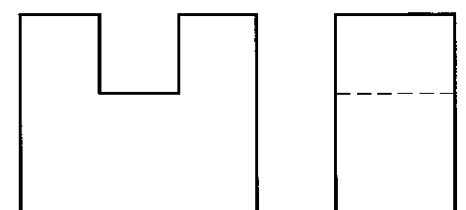
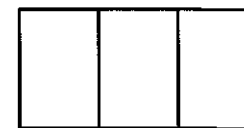
(3) _____



(4) _____



(5) _____



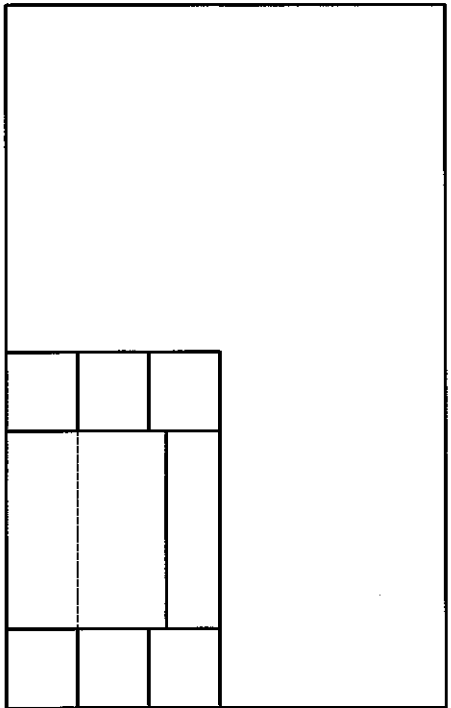
(6) _____

F

$P =$ _____
 $F =$ _____
 $H =$ _____

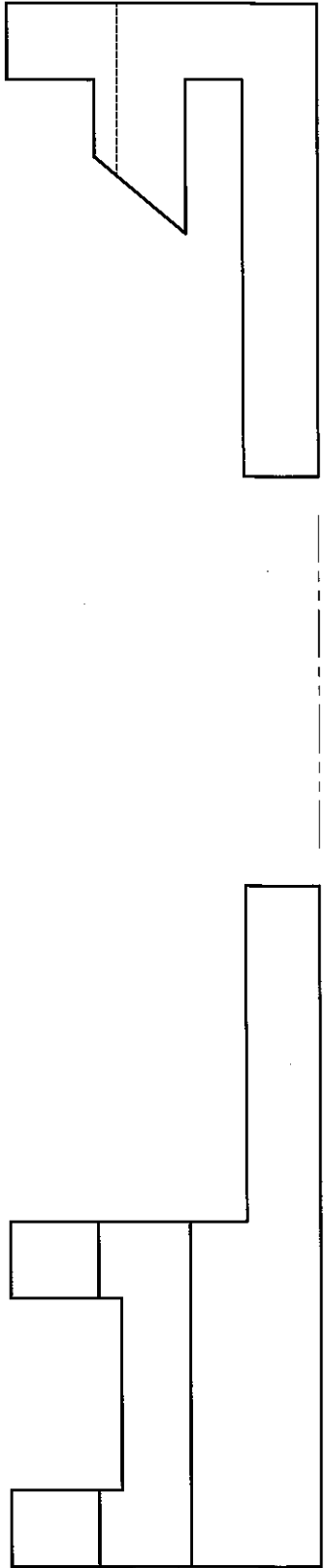
SAMPLE DRAWING LAYOUT WITH REFERENCE PLANES

F



P

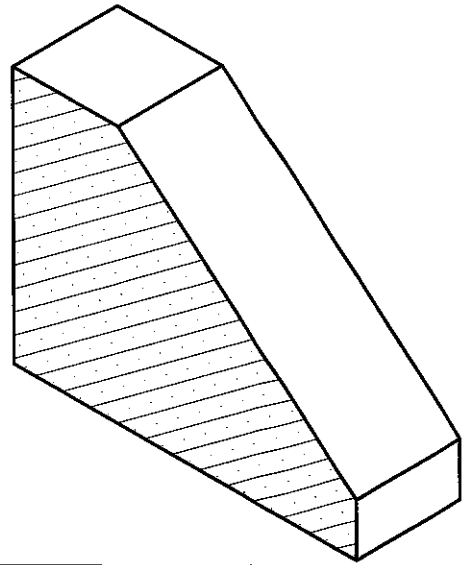
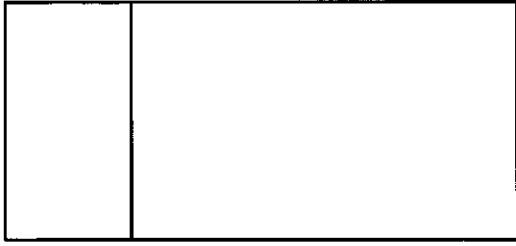
H



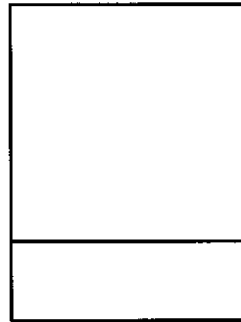
SOLVE FOR THE MISSING VIEW

1

F



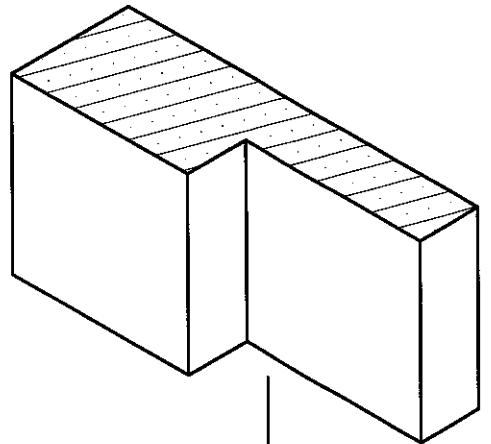
P



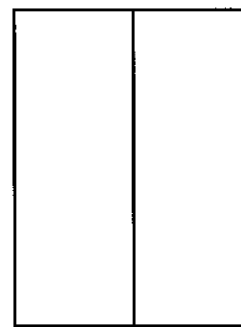
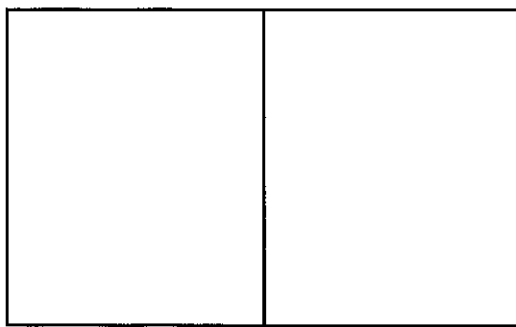
F

H

F



P



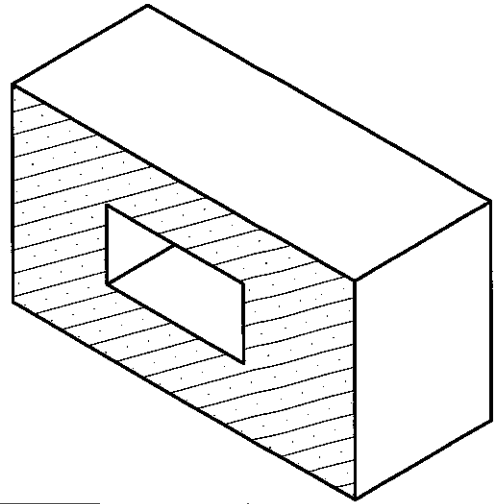
F

H

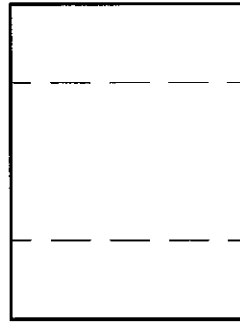
SOLVE FOR THE MISSING VIEW

2

F



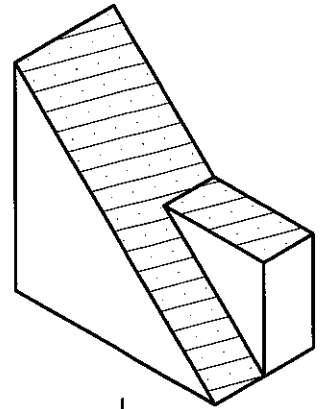
P



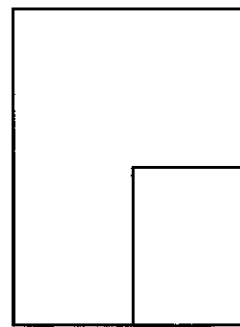
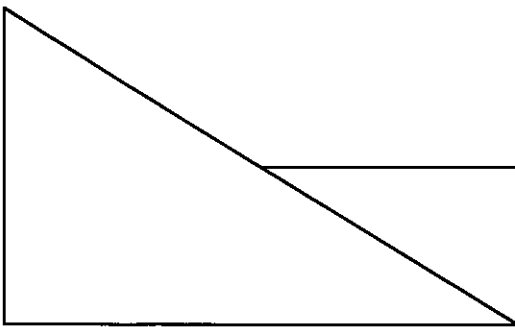
F

H

F



P



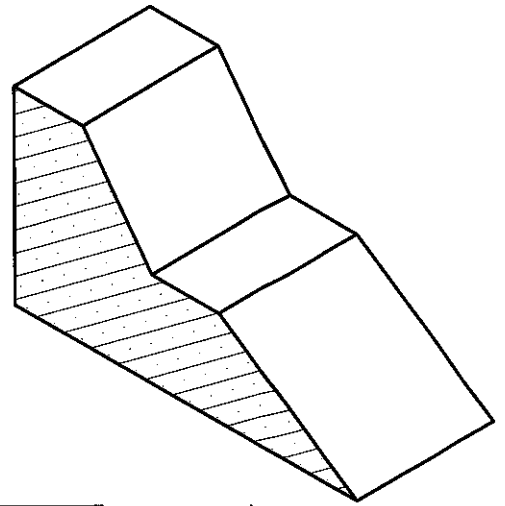
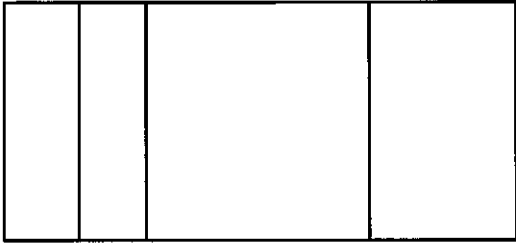
F

H

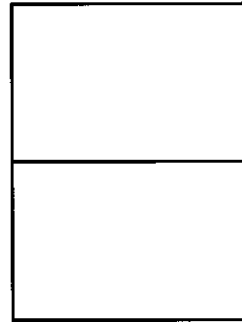
SOLVE FOR THE MISSING VIEW

3

F



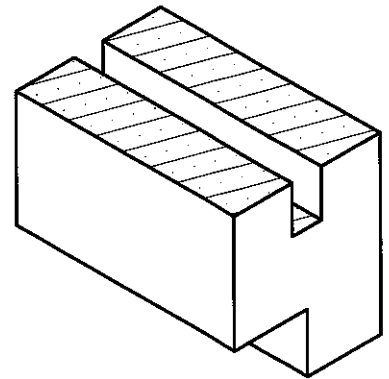
P



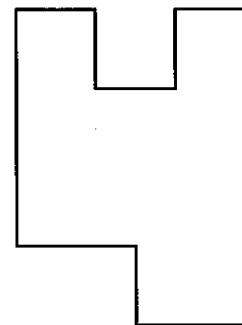
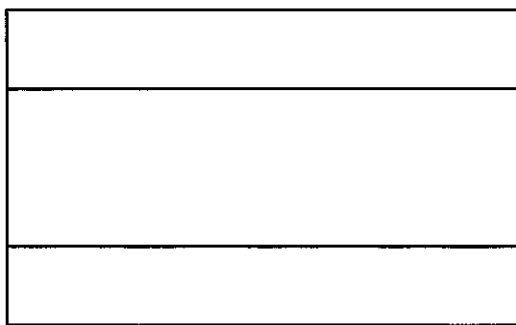
F

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F

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