

## IAT 106: Spatial Thinking and Communicating Lab 3

### Multiview & Orthographic Views

In this lab you will do a variety of exercises designed to help you further develop your ability to see and think spatially, and to further develop your sketching skills. There are 4 parts to the lab. This Lab is worth a total of 100 pts (5% of the overall course grade).

#### Part I

##### Match Isometric to Multiview: (15 min.)

This exercise has to be done on canvas. Please check Week 03 → *Match Isometric to Multiview*. In this exercise, you will match a 3-view multi-view drawing with an isometric drawing. This needs to be completed by the start of the next lab.

#### Part II

##### Identify Multiview to Isometric: (homework)

This exercise is also done on canvas. Please check *Week 03 → Match Orthoviews to Isometric views*. Complete the exercise *on your own* and submit it before the start of your next lab. You are to select an orthogonal view that matches a specified view of an isometric drawing of an object.

**Part III (60 min)**

This consists of 3 types of exercise from your textbook. For each type,

1. Your TA will work through the first example on the board.
2. You will work through the next on your own, in the online lab. Feel free to ask questions of your TA and instructor. The answer will be given to you so you can compare with your own result.
3. Complete the homework exercises on your own (you will probably not be able to complete these in the lab. These are to be submitted by the next lab. Answers will be posted after the due date so you can check.

Do 2 exercises per sheet of paper, and put your name, student number, date and lab section on the top right corner of each sheet, printed legibly! **You can use plain or grid paper**; grid paper may make it easier and faster to complete the exercises.

Use this format:

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Last, First  
Student #  
Section D10x

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**Missing View: (20 min.)**

**Problem 5.3, (fig 5-120): Please see the attached book print at the end of this document.**

Given 2 views, sketch them and add the missing view. *In addition, draw an isometric view of each.*

Demo: #2

In Lab: #4

On your own: 7 and 9.

**Missing Line; (20 min.)**

**Problem 5.4 (fig 5-121); Draw the 3 views and add missing line(s) : Please see the attached book print at the end of this document.**

Demo: #1

In Lab: #4

On your own: 10, 13 and 17

**Draw multiviews, given the isometric; (20 min.)**

**Problem 5.5 (fig 5-122): Please see the attached book print at the end of this document.**

Demo: #6

In Lab: #7

On your own: 11 and 21

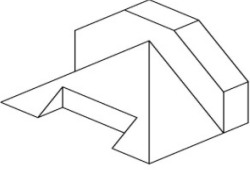
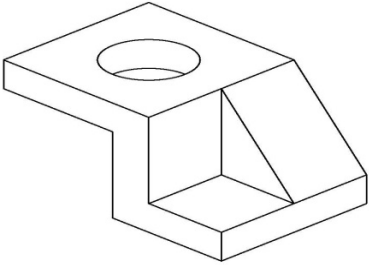
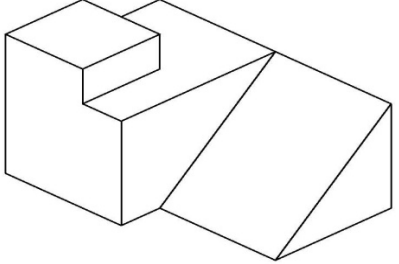
**Deliverable**

Upload the home on Week 03 Canvas container.

### Part IV: Isometric Drawings (40 min)

Given an isometric view, apply the steps of the boxing-in method described in Section 7.3 of the textbook to sketch the isometric drawing.

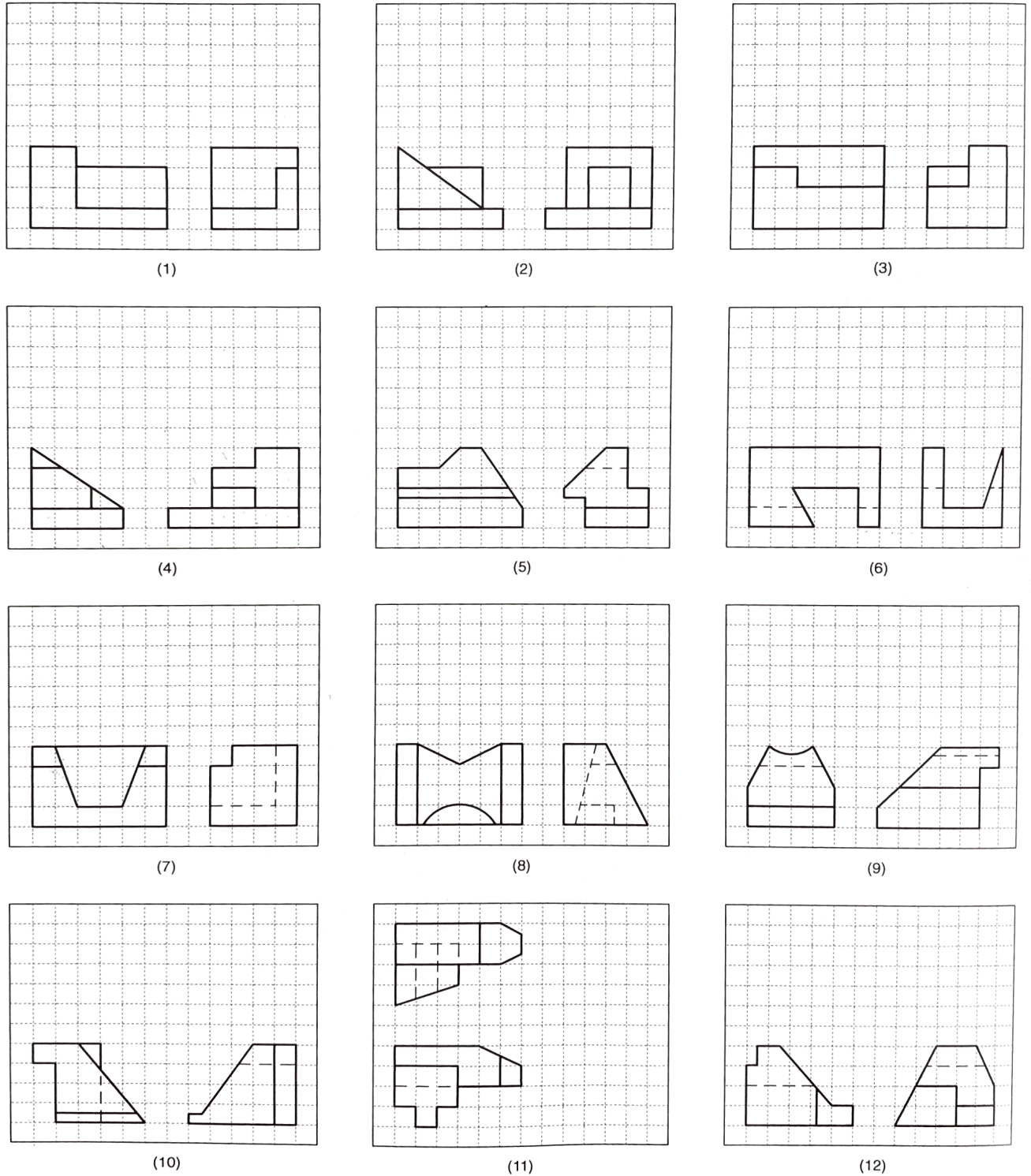
For exercises 1.1, 1.2, and 1.3 below, create an isometric drawing of the object using the boxing-in method demonstrated earlier in the lab and described in the textbook. Leave construction lines on the final sketch and make sure that the final form of the object is darkened and visible (sharp and continuous lines). Please allocate one page for each exercise. **Use plain paper**, and *remember to put your name, student#, section and date on the top right of EACH page.*

Exercise 1.1	Exercise 1.2	Exercise 1.3
		

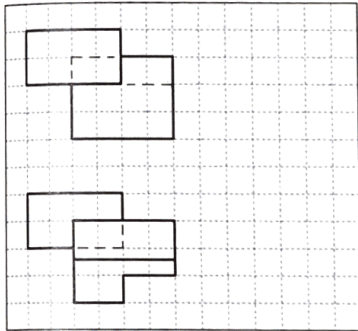
**Assessment**

Item	Due	Individual or Team	Criteria	Activity Mark	Part Mark	Total
LIVE session activity		Individual		10	10	
Match iso to multiview	before next lab	individual			10	
			complete 10 of 12 parts	10		
Select orthoview matching isometric	before next lab	individual			10	
			complete all parts	10		
Drawing exercise	before next lab	individual			55	
			missing view	20		
			missing line	15 (5 each)		
			draw multiview given isometric	20		
Isometric drawings	before next lab	individual			15	
			part A	5		
			part B	5		
			part C	5		
TOTAL						100

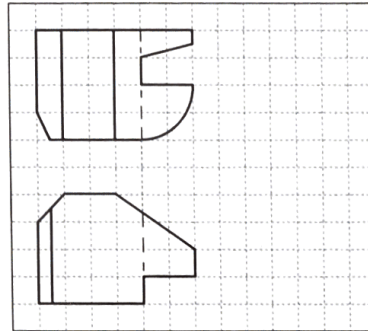




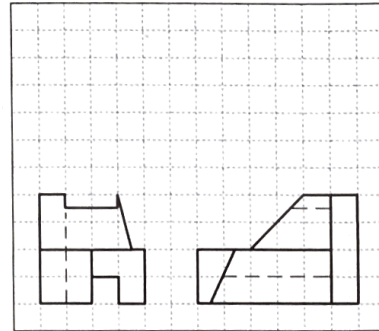
**Figure 5.120** Two-view drawings of several objects for Problem 5.3



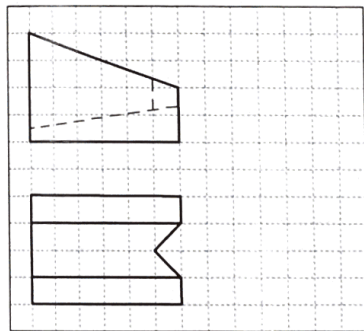
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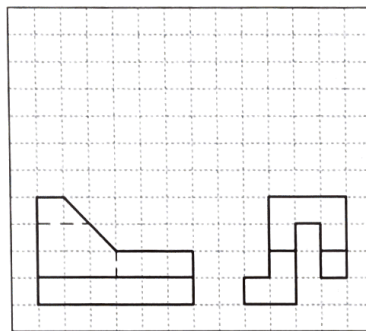
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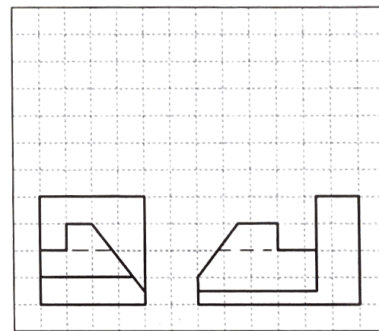
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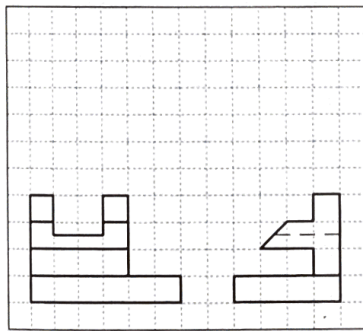
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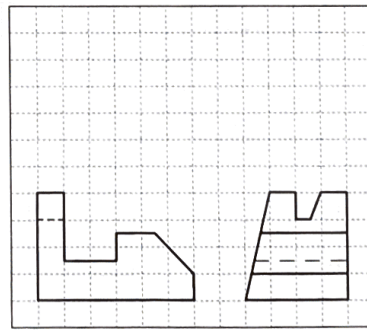
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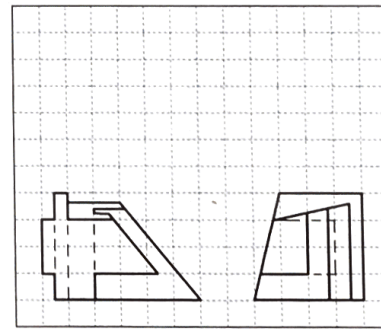
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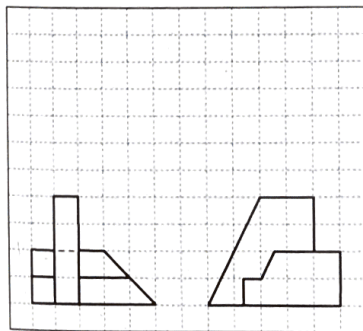
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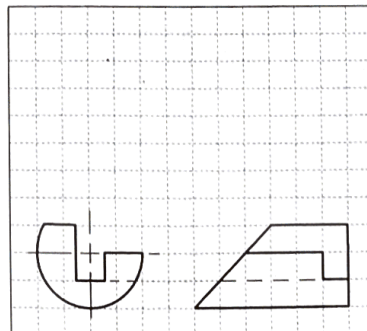
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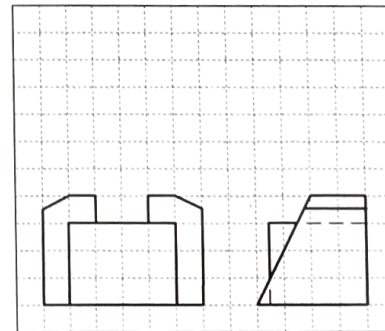
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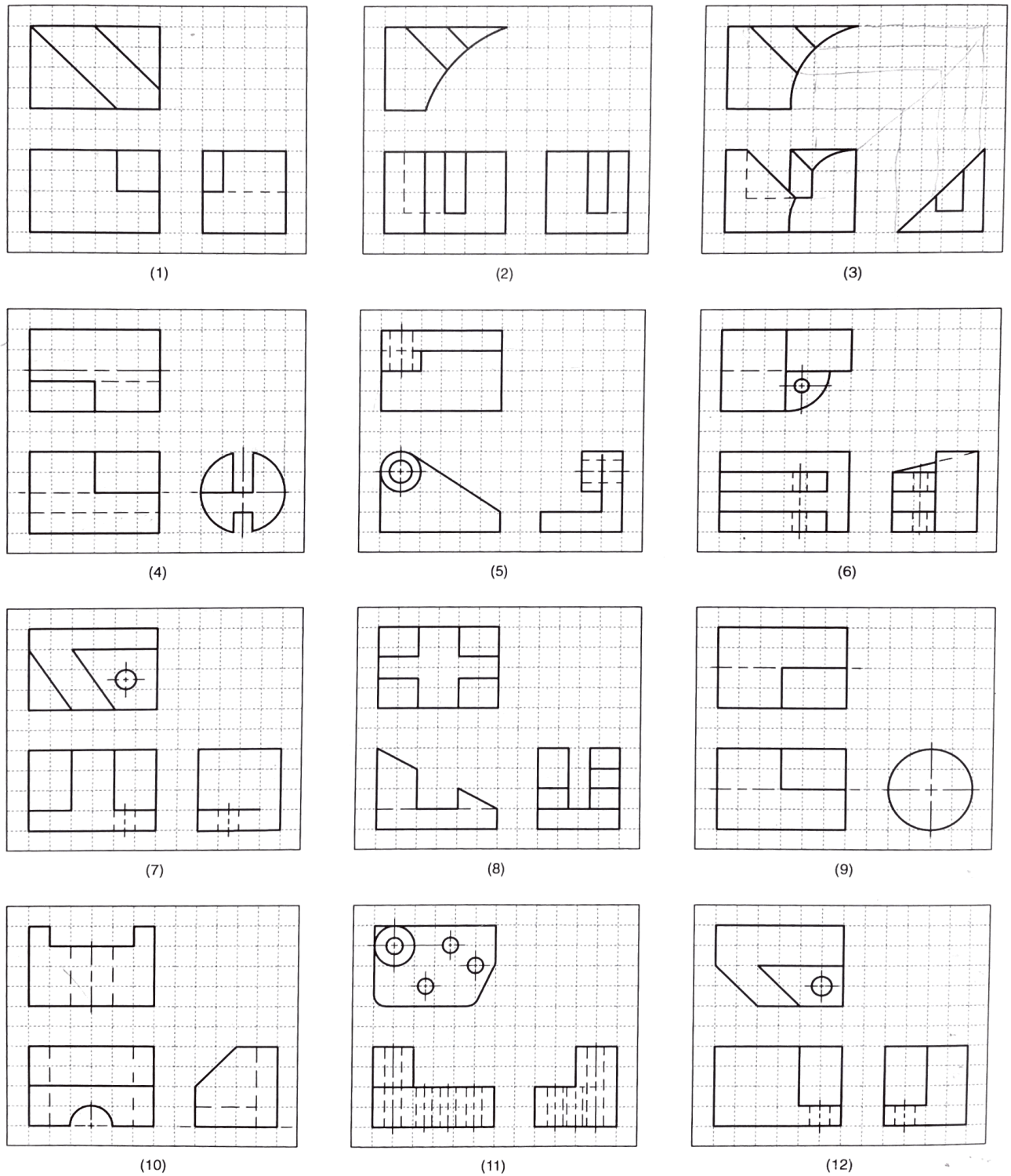


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Figure 5.120 Continued

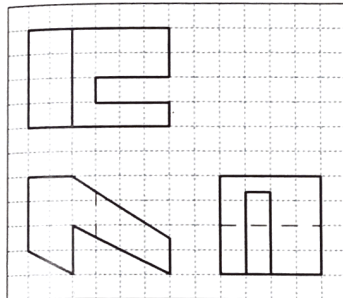


**Figure 5.121** Three incomplete views of a multiview drawing of an object for Problem 5.4

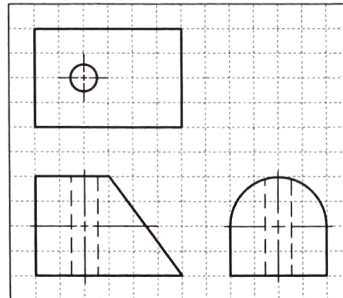


## Multiviews and Visualization

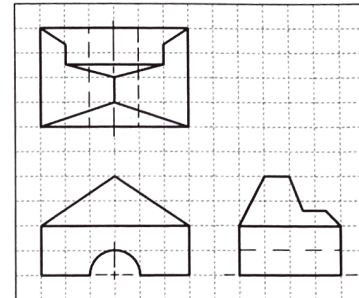
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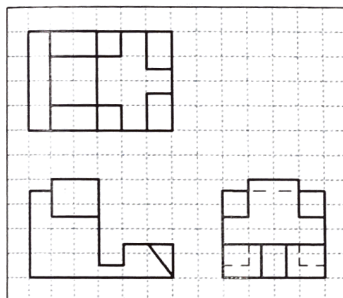
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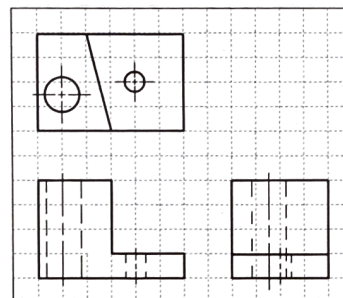
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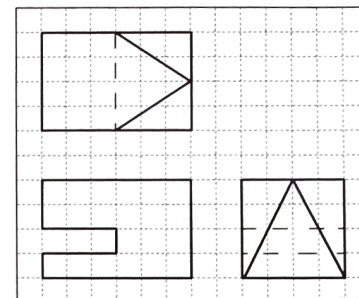
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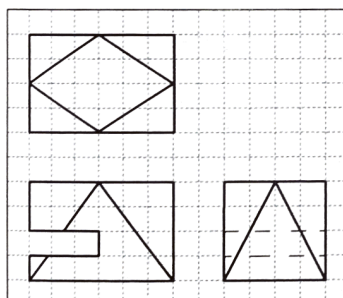
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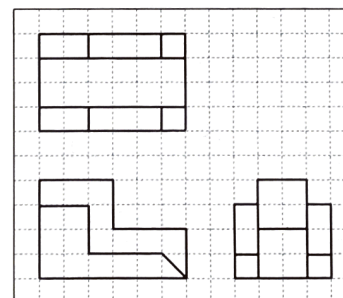
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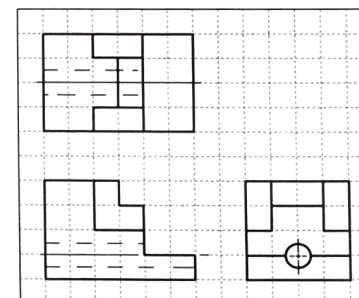
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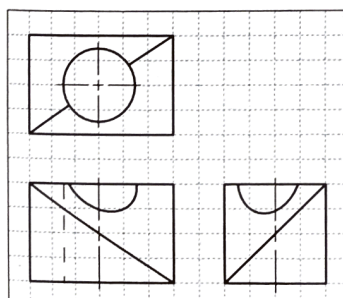
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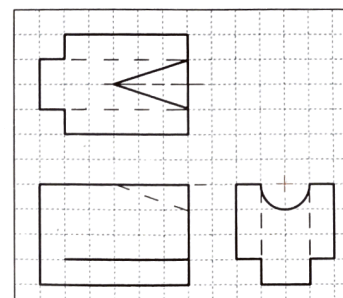
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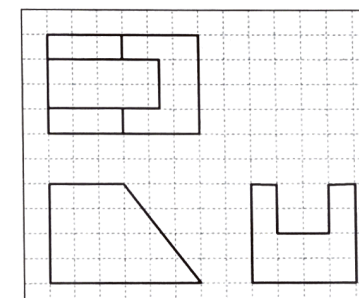
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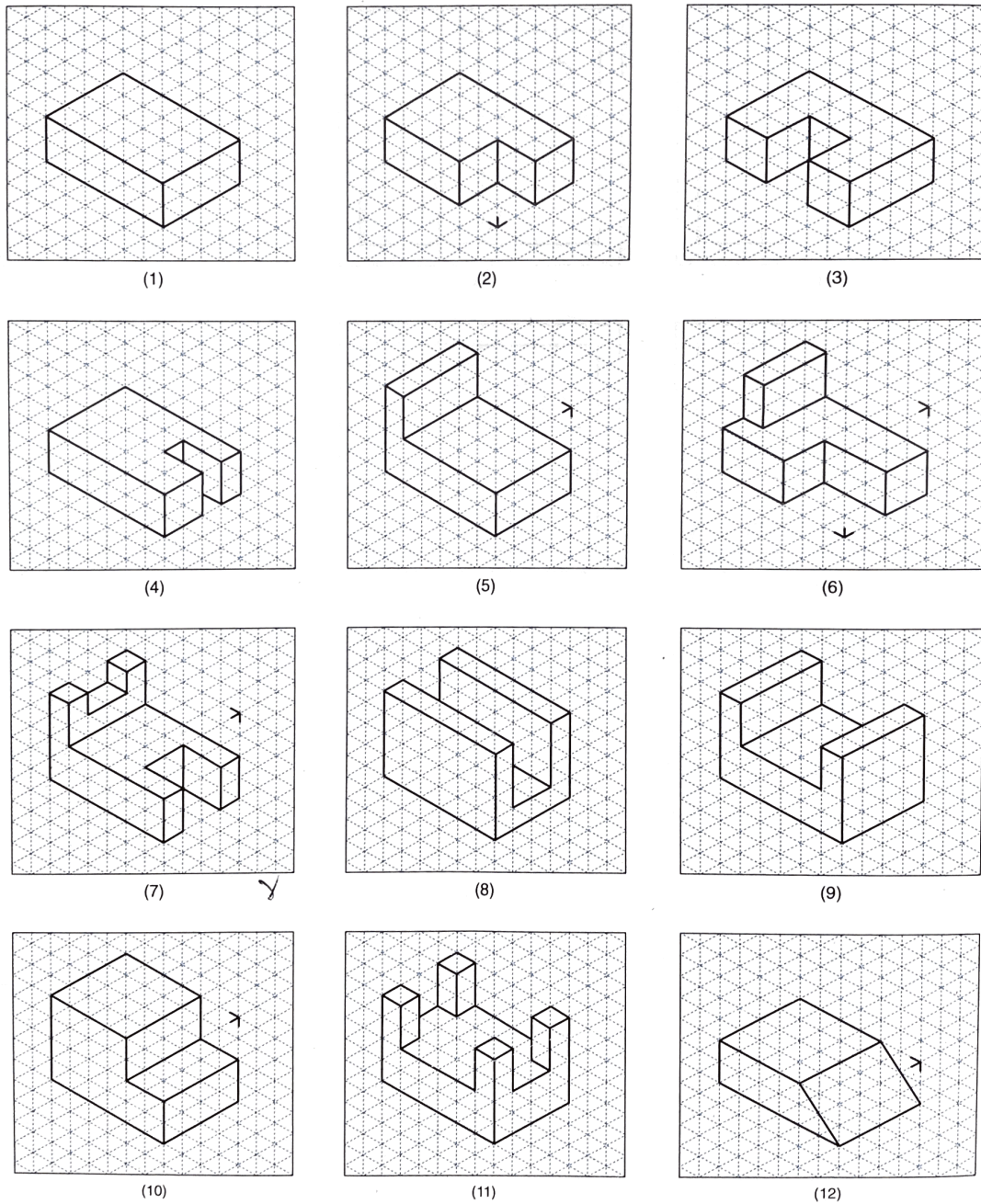
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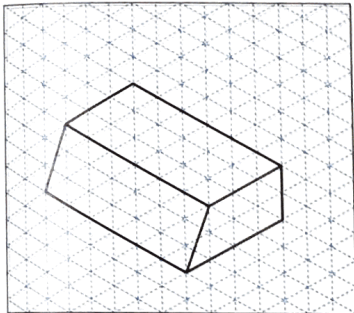
Figure 5.121

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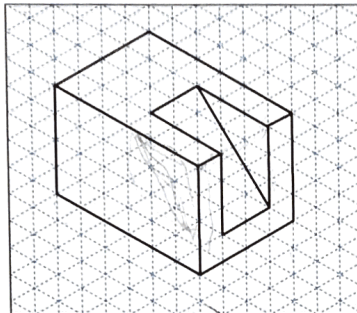


**Figure 5.122** Problem 5.5 multiview sketching problems  
Assume all holes to be through.

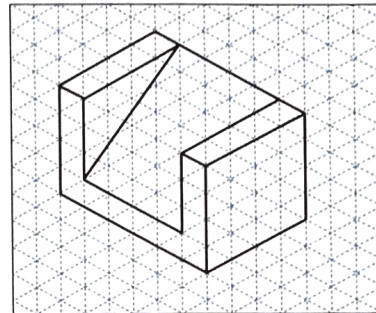




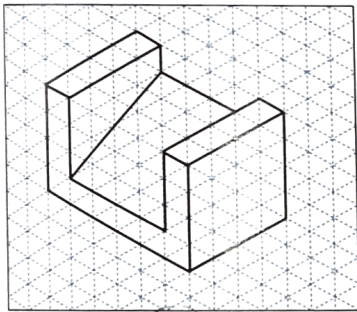
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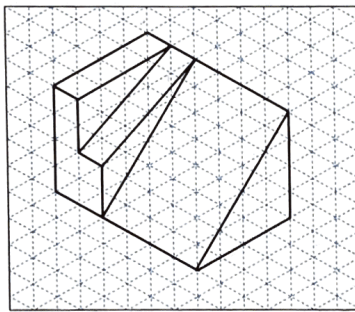
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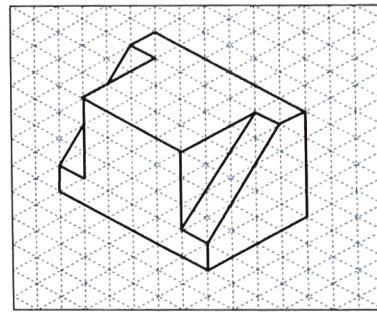
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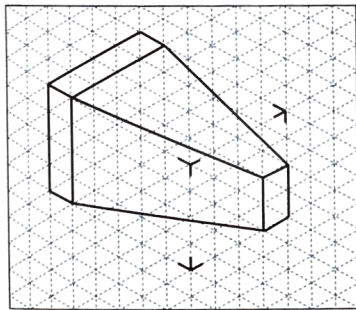
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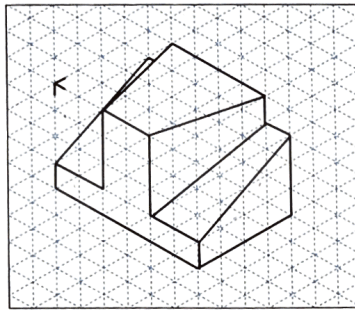
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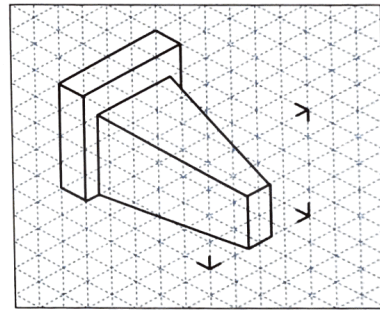
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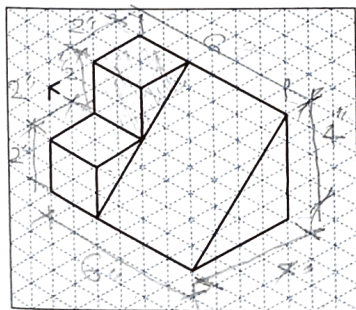
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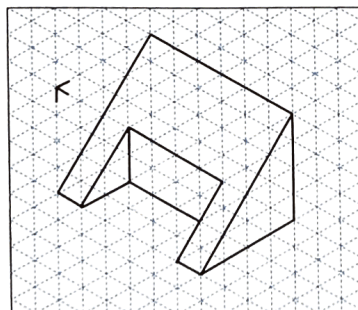
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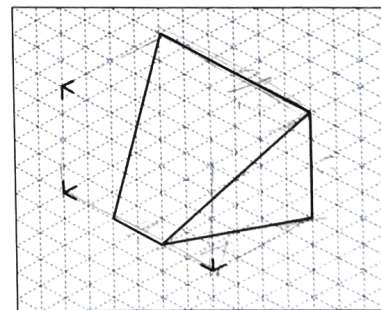
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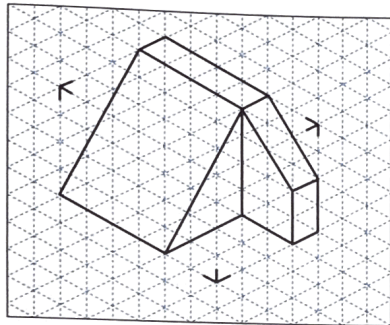
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**Figure 5.122** Continued

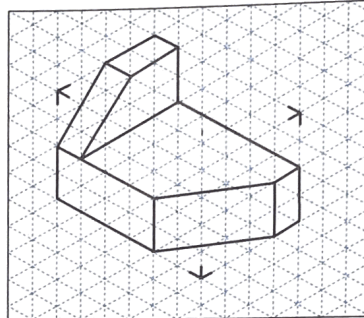


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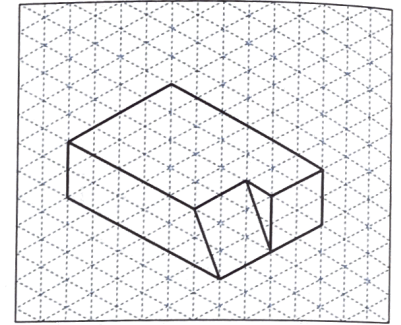
## CHAPTER 5



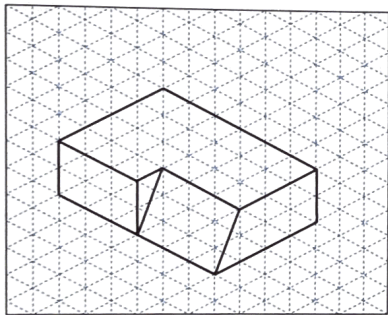
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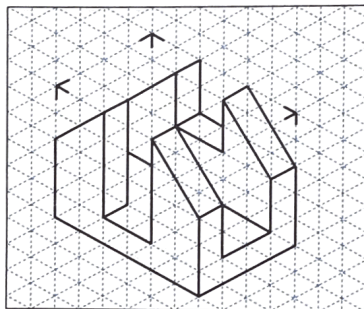
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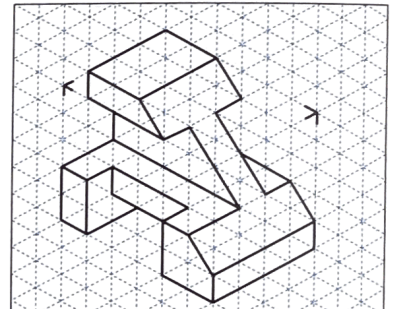
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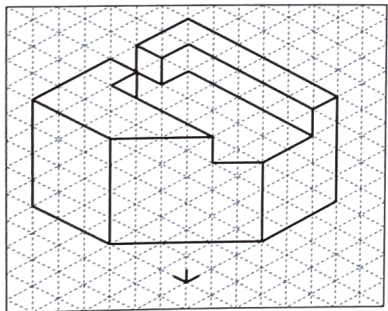
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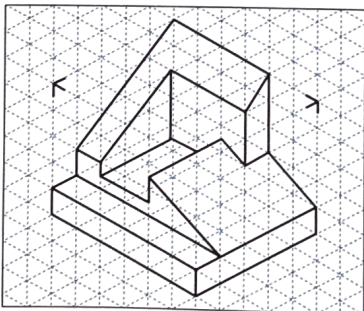
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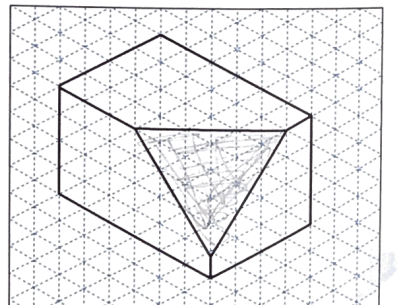
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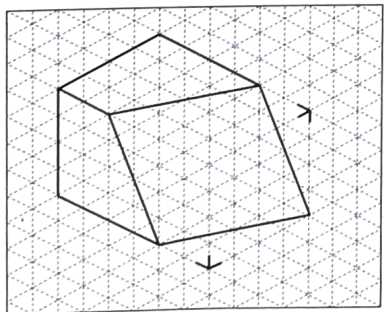
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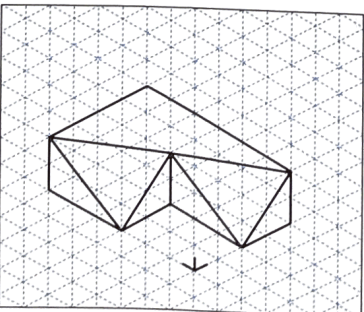
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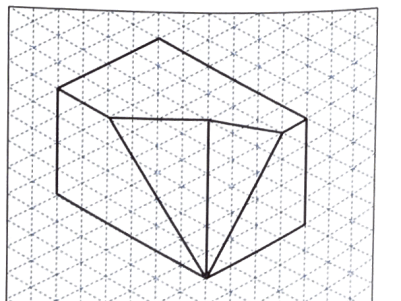
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**Figure 5.122** Continued



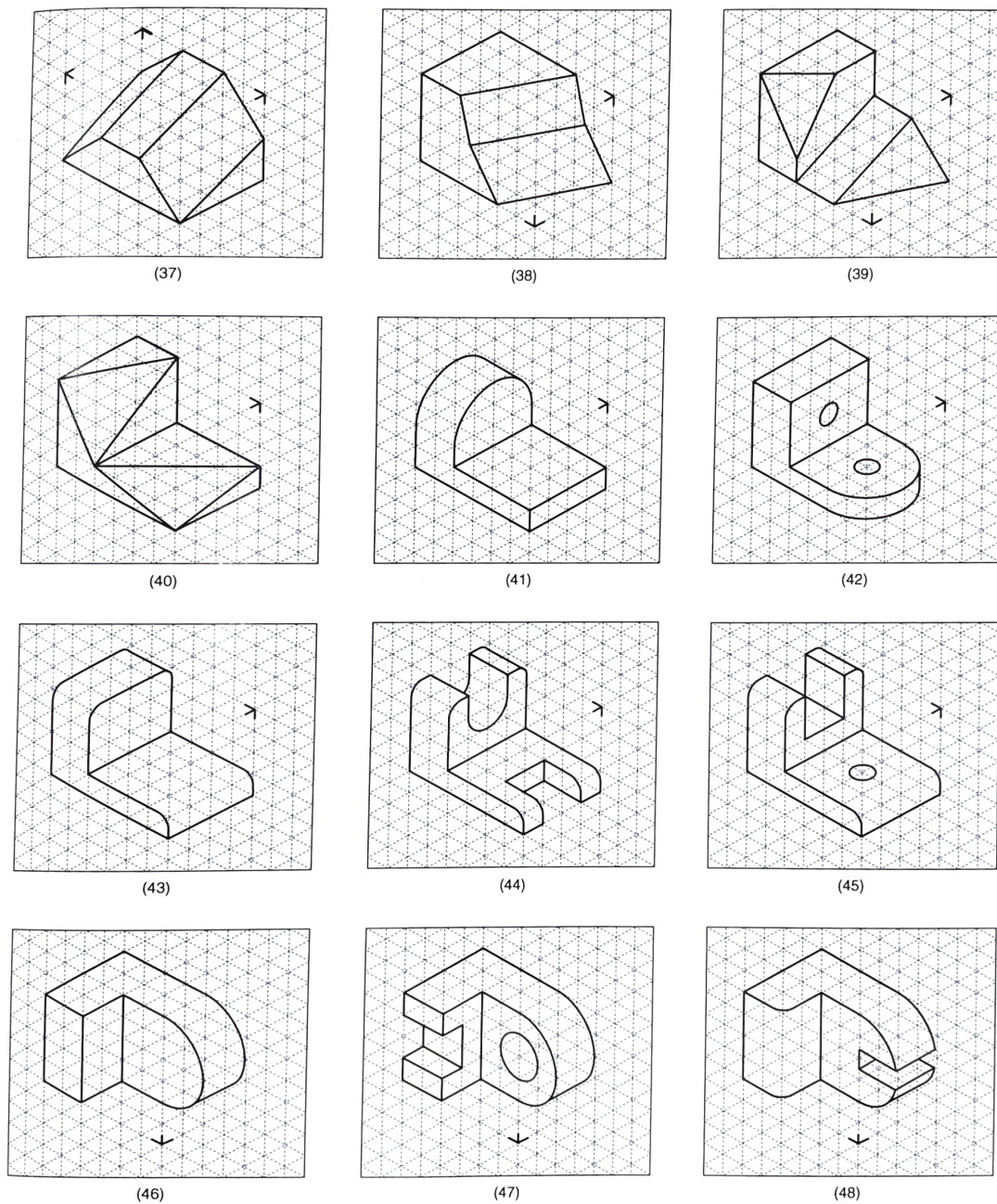
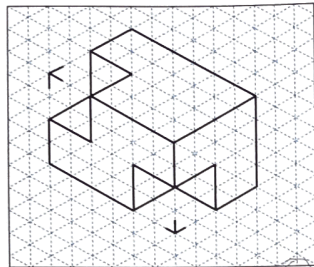


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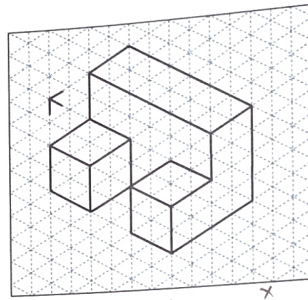


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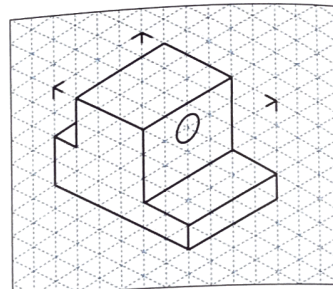
CHAPTER 5



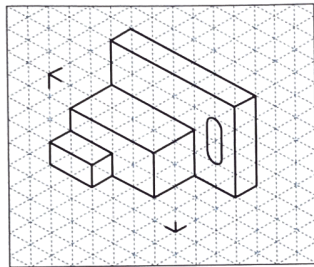
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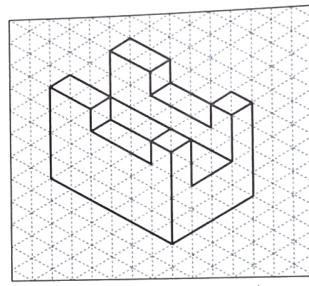
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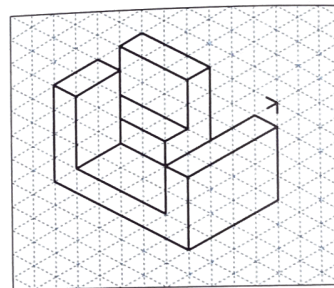
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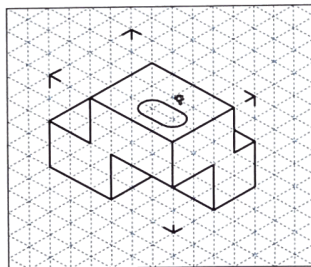
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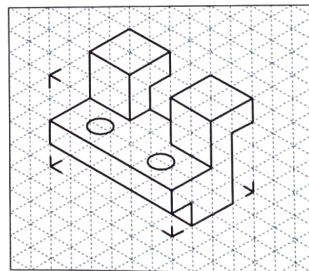
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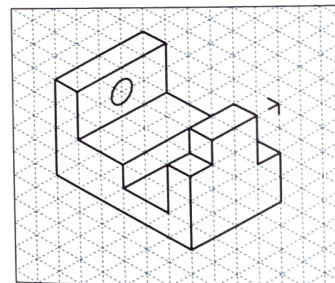
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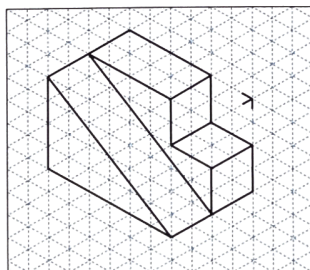
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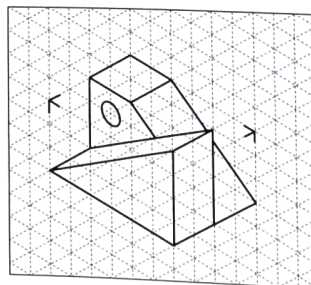
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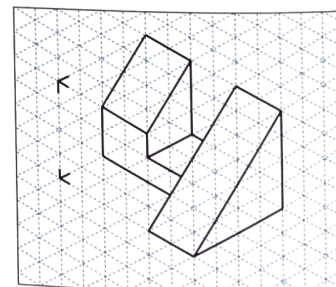
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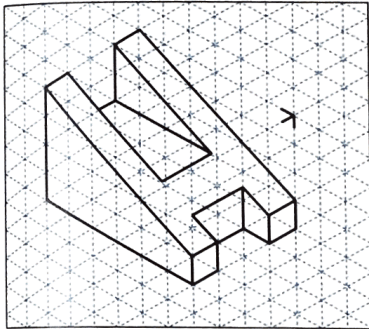


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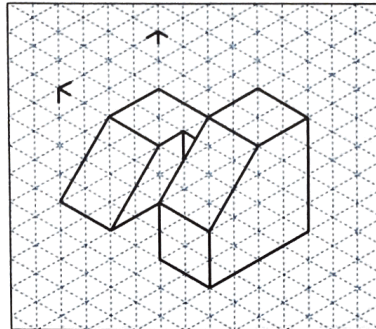
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Figure 5

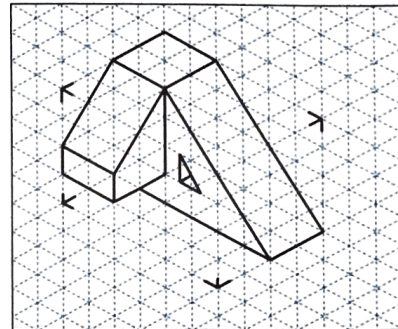




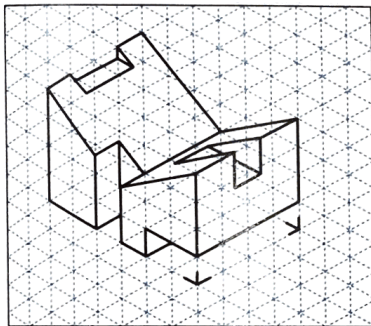
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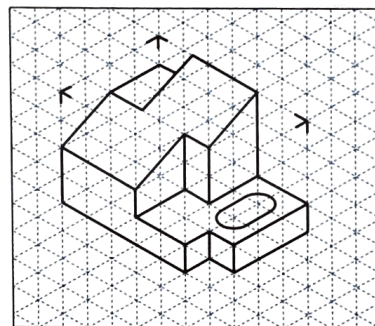
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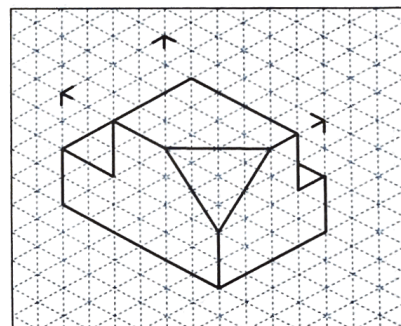
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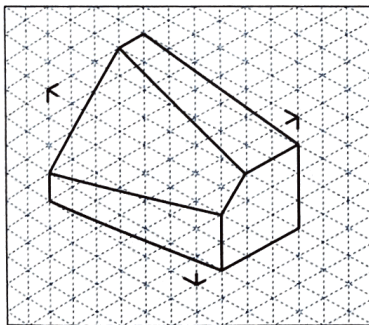
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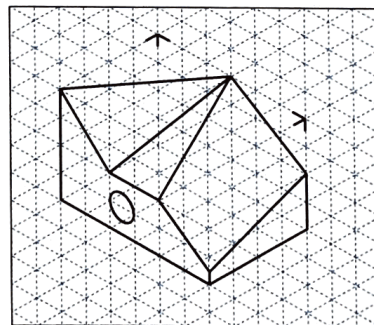
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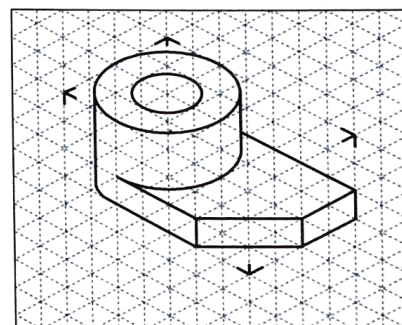
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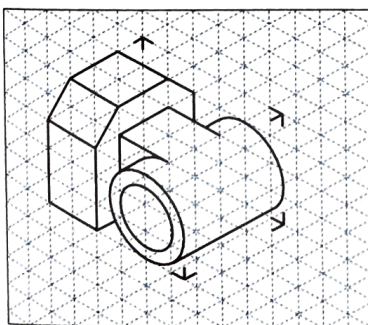
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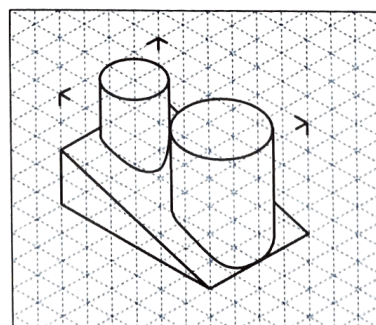
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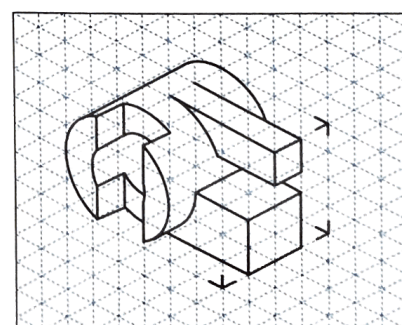
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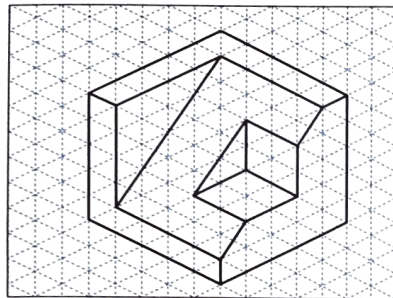
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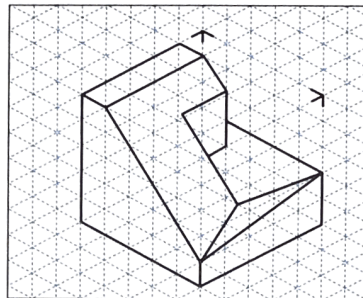


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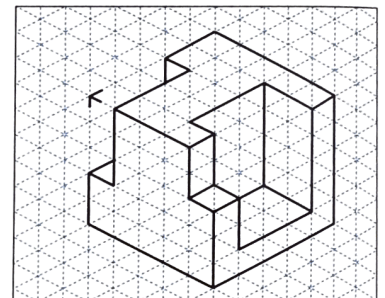
CHAPTER 5



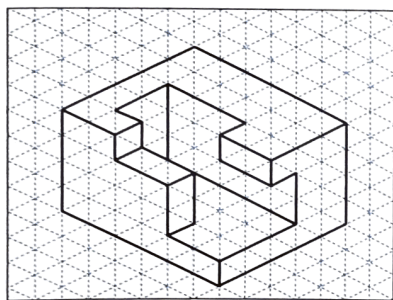
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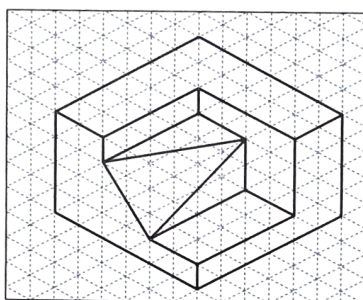
(74)



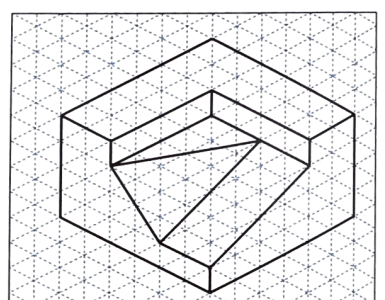
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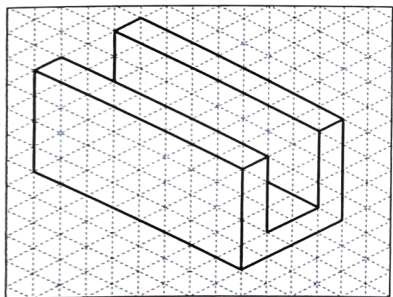
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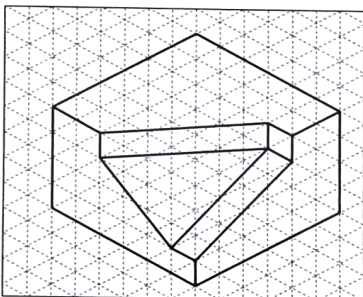
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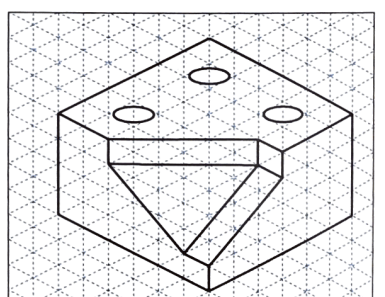
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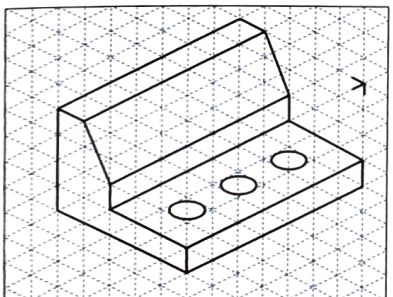
(79)



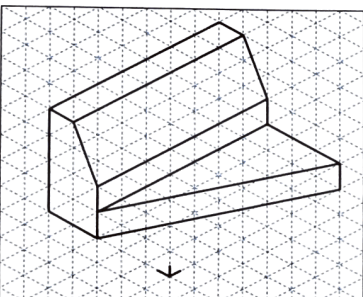
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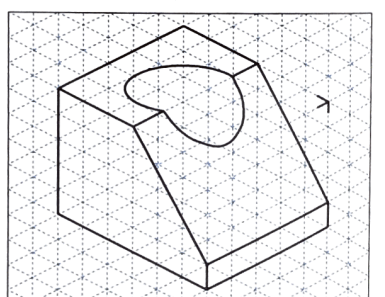
(81)



(82)



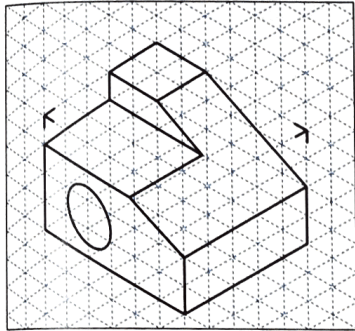
(83)



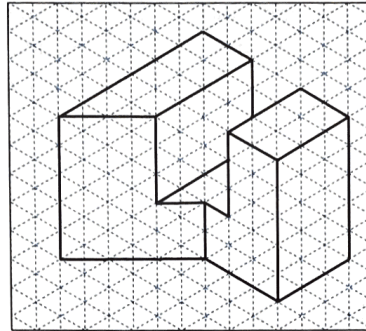
(84)

**Figure 5.122** Continued

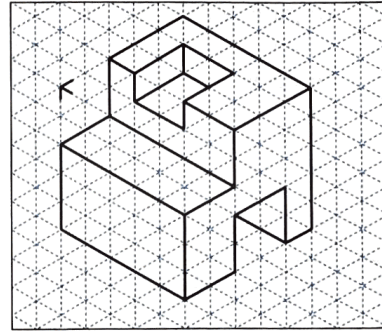




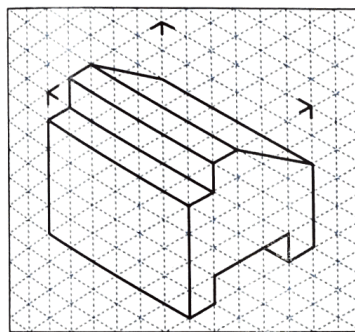
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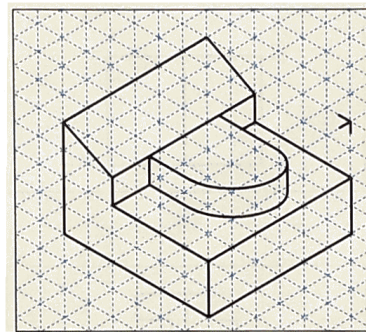
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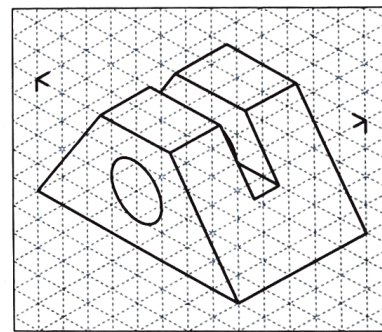
(87)



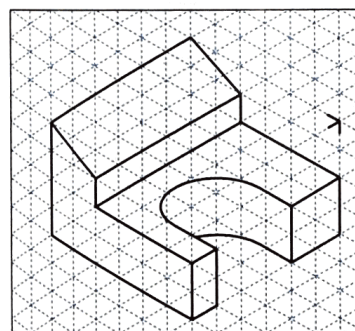
(88)



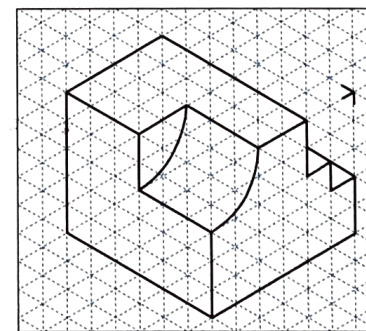
(89)



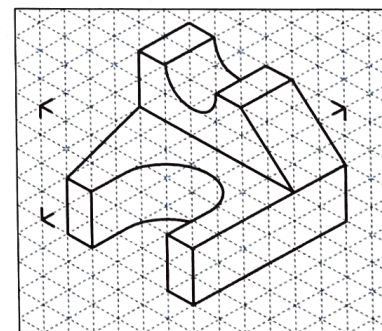
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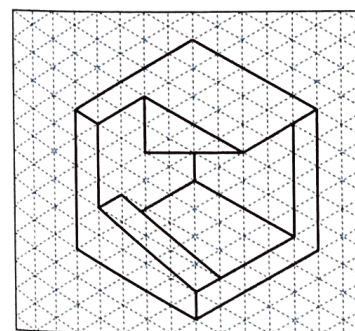
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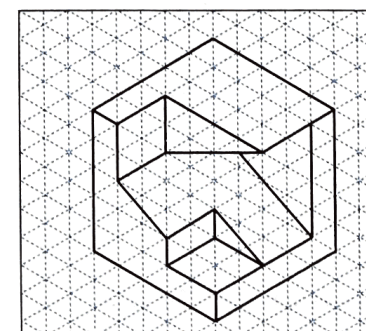
(92)



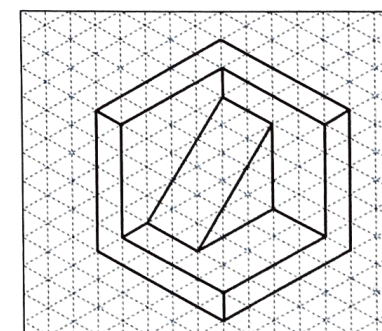
(93)



(94)



(95)



(96)

Figure 5.122 Continued