



Visualization Chapter 13

Visualizing Objects

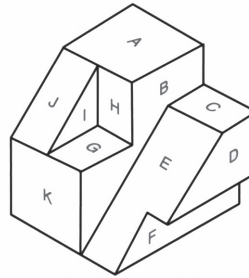
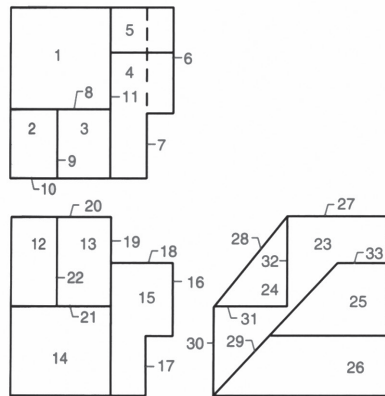
In previous chapters you completed exercises requiring different types of visualization skills including creating 2D sketches and interpreting Boolean operations and their effect on 3D primitive shapes. Did you find that some exercises were easier than others? Visualization skills develop differently for everyone. However, they typically start with what we can see. Next they grow into what we can imagine or visualize. Then they develop into what we can sketch or draw. One of the first visualization skills we learn is recognizing 2D shapes. Next we become familiar with 3D shapes. Finally, we gain the more advanced abilities of understanding measurement, like distance and volume, and movement including rotation in space. Like any other skill, the ability to visualize can be taught and improved.

Engineering education is a specialized field of study. The development of spatial abilities is a major area of research in this field. Being able to visualize is an important part of being a successful engineering and technology student. It is vital to find the best way to develop these skills.

Exercises

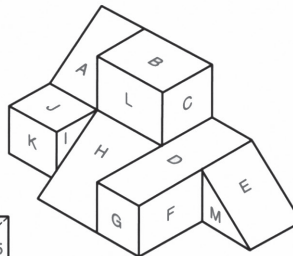
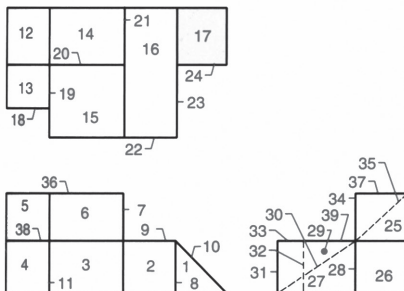
These exercises are geared toward helping you improve your ability to visualize objects in both 2D projections and 3D orientations.

Exercise 1 In the given chart match the numbers on the top, front, and side orthographic views with the corresponding letter from the pictorial drawing.



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

(A)



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			
L			
M			

(B)

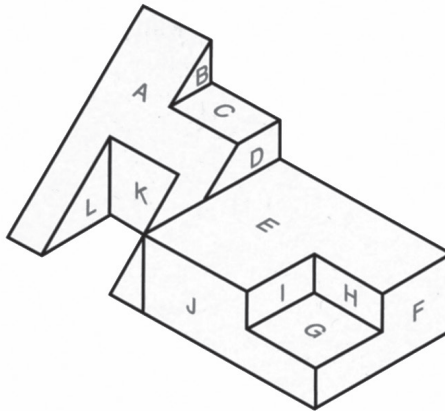
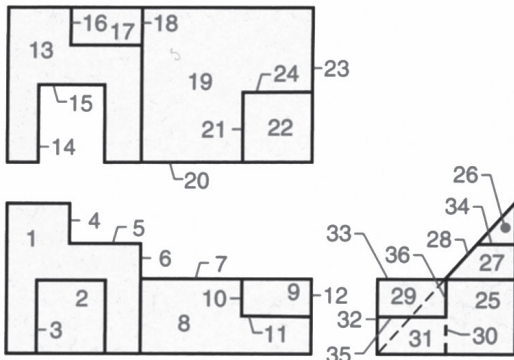
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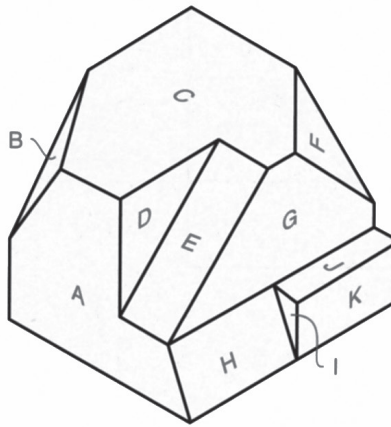
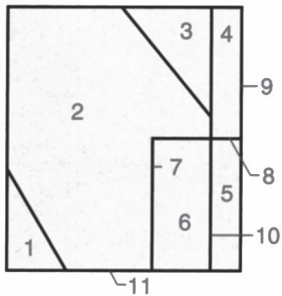
Visualizing Objects

Exercise 2 In the given charts, match the numbers on the top, front, and side orthographic views with the corresponding letter from the pictorial drawings.



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			
L			

(A)



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

(B)

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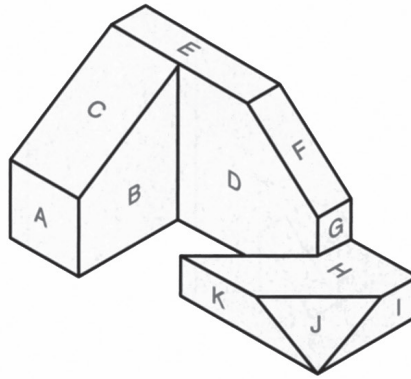
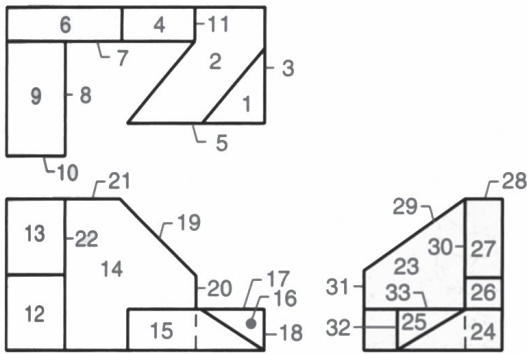
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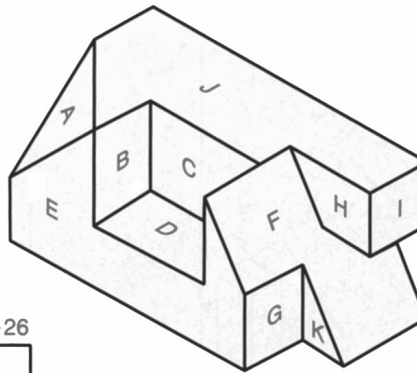
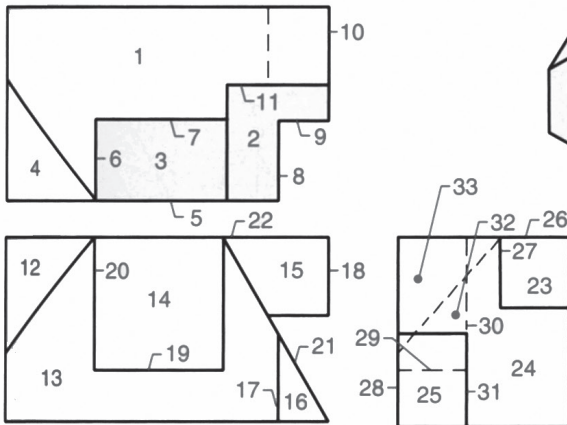
Visualizing Objects

Exercise 3 In the given charts, match the numbers on the top, front, and side orthographic views with the corresponding letter from the pictorial drawings.



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

(A)



Surface	Top	Front	Side
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

(B)

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