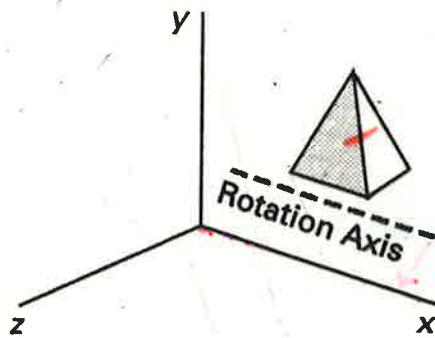**Fig. 11-8   Sequence of transformations for rotating an object about an axis that is parallel to the x axis.**
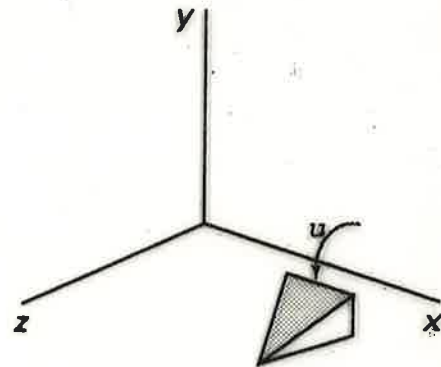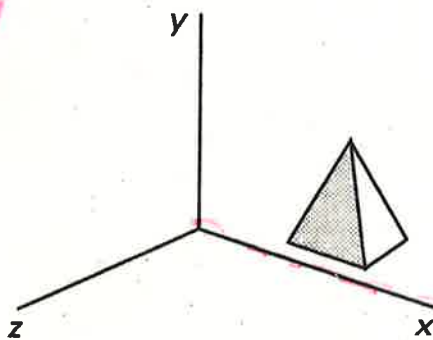

(a)
Original Position of Object

(b)
Translate Rotation Axis onto x Axis

(c)
Rotate Object Through Angle u
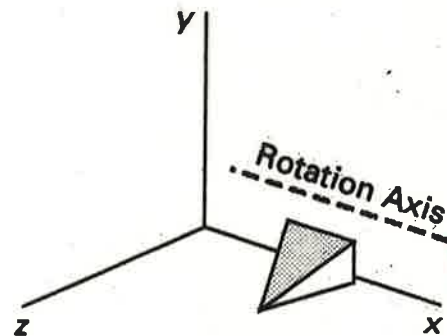
(d)
Translate Rotation
Axis to Original Position

Figure 5-12

(a)

(b)

$$T \cdot R \neq R \cdot T$$

Figure 12-18

(b)
Invert Viewing
z Axis

(c)
Translate Viewing
Origin to World Origin

(d)
Rotate About World
x Axis to Bring
Viewing z Axis into
the xz Plane of
the World System

(e)
Rotate About
the World y
Axis to Align
the Two z Axes

(f)
Rotate About
the World z
Axis to Align
the Two Viewing
Systems

(a)
**Original Coordinate
Description of Object**

(b)
**Projection on the
Viewing Plane**
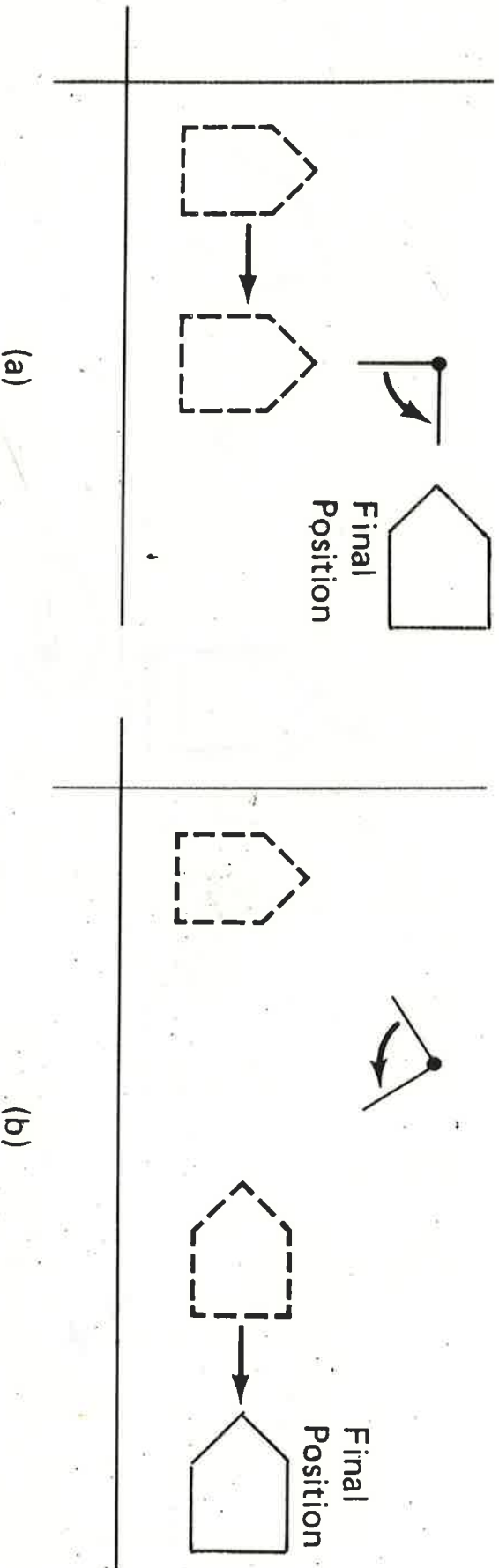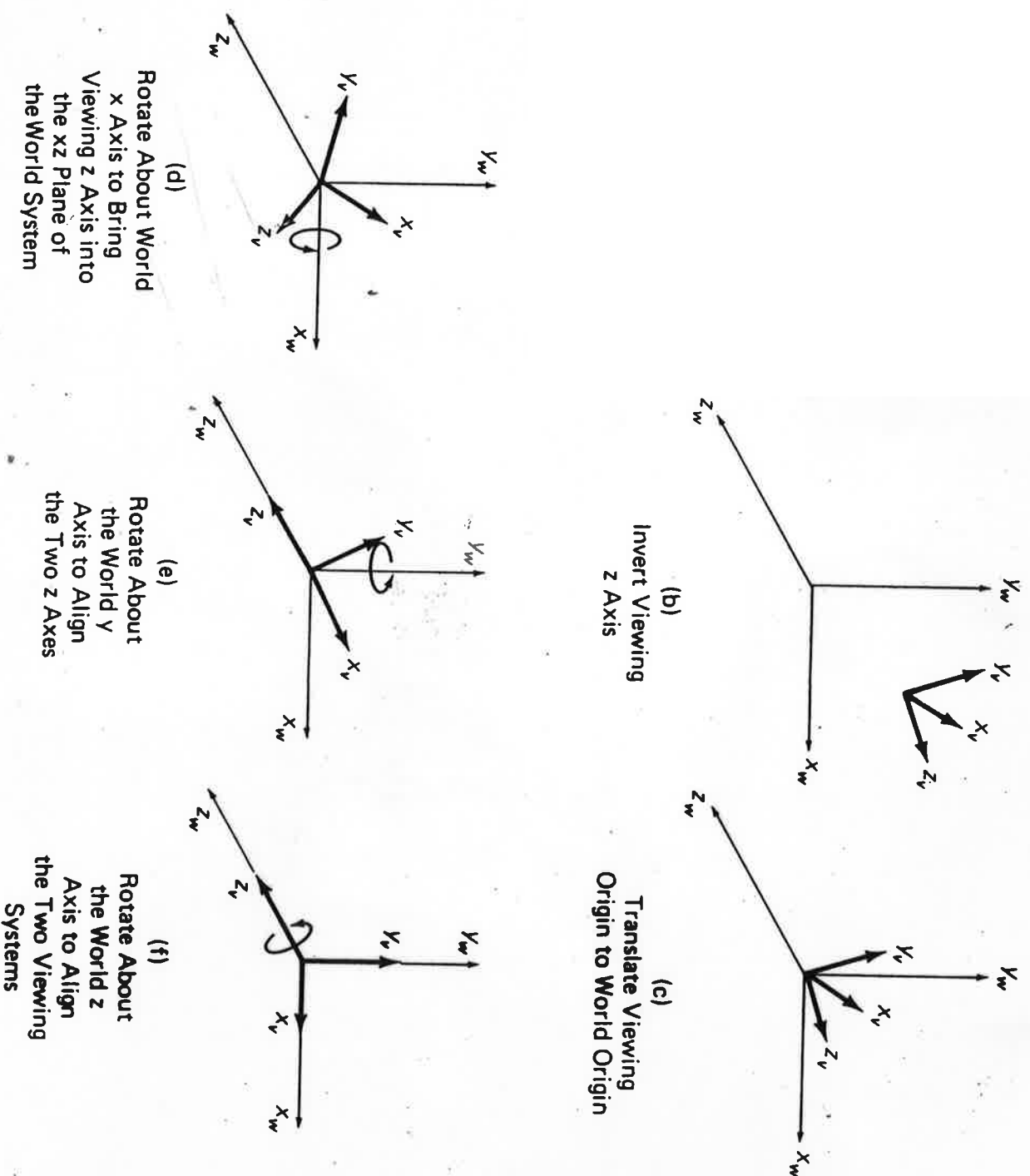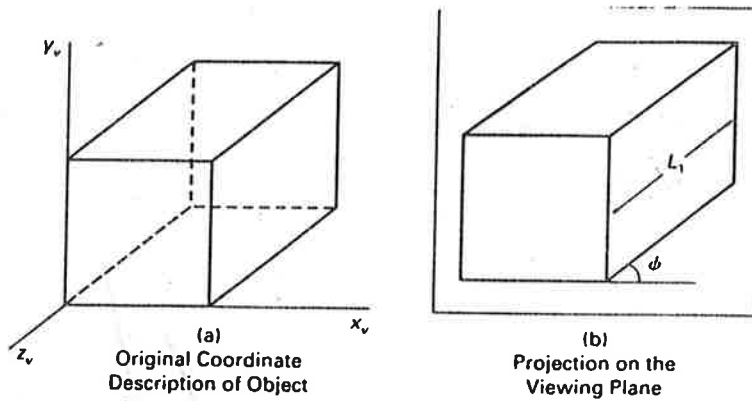
Figure 12-22
Oblique projection of a box onto the $z_v = 0$ plane.
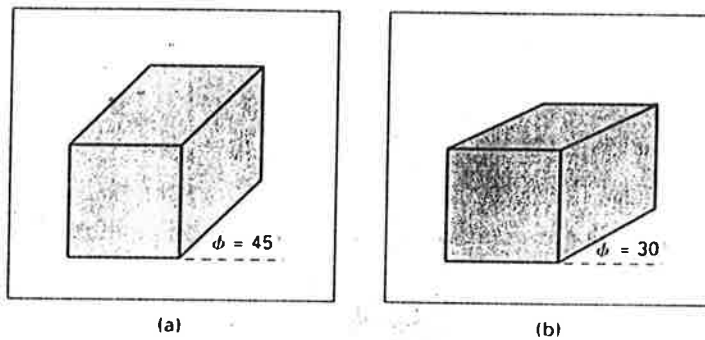

$\phi = 45$

$\phi = 30$

(a)

(b)

Figure 12-23
Cavalier projections of a cube onto a view plane for two values of
angle ϕ.
Note: Depth of the cube is projected equal to the width and height.
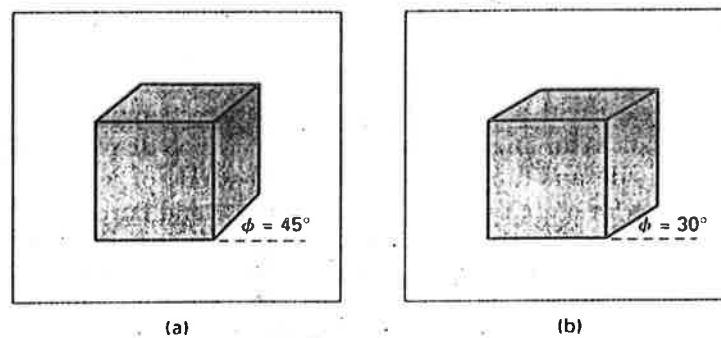
443

$\phi = 45°$

$\phi = 30°$

(a)

(b)

Figure 12-24
Cabinet projections of a cube onto a view plane for two values of
angle ϕ. Depth is projected as one-half that of the width and
height.

where d_p
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(a)
Parallel Projection

(b)
Perspective Projection

Figure 12-1