Oblique Projections
Oblique Sketches

- Show exact size and shape of one face of an object
- Object face with most detail parallel to view plane
- Relatively easy to draw

A. Receding axis up and to left
B. Receding axis up and to right
Oblique Sketching Process 1

- Single extruded feature

- Cut block; Cabinet oblique
Oblique Sketching Process 2

Curved features parallel to projection plane; Cavalier oblique
Oblique Projection Geometry 1

- One face of object parallel to projection plane
- Parallel sight lines make an oblique angle with projection plane
Oblique Projection Geometry 2
Oblique Projection Angle ($\alpha$)

- Angle of intersection of sight line with projection plane
- Determines type of oblique projection (Cavalier, Cabinet, General)
# Classes of Oblique Projections

<table>
<thead>
<tr>
<th>Type of Oblique</th>
<th>Oblique Projection Angle (α)</th>
<th>Receding Axis Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cavalier</td>
<td>45°</td>
<td>1</td>
</tr>
<tr>
<td>Cabinet</td>
<td>63.43°</td>
<td>1/2</td>
</tr>
<tr>
<td>General</td>
<td>45° &lt; angle &lt; 63.43°</td>
<td>1/2 &lt; scale &lt; 1</td>
</tr>
</tbody>
</table>
Cabinet vs Cavalier

Cavalier
\( \alpha = 45^\circ \)
RA scale = 1

Cabinet
\( \alpha \approx 63.43^\circ \)
RA scale = \( \frac{1}{2} \)
Oblique Projection Angle (2D)

Determines receding axis scale

PP on Edge

L

45.00° 63.43°

L

CAVALIER

L/2

CABINET
Receding Axis Angle 1

- Normally chosen to be 30°, 45°, or 60°
- Determines relative emphasis of receding planes
- Related to angle of rotation of projector about the projection plane normal (β)
Receding Axis Angle 2

Related to $\beta$, angle of rotation of projector about the projection plane normal
Oblique Projections

C’est tout!