Name_____

Perspective

Sarah Knill; Resource: *Drawing Essentials* by Deborah Rockman

Scale (included in key)

_____

Eye Level/Horizon Line (EL/HL) (included in key)

_____

Ground Line (GL)

_____

Vertical Measuring Line (VML)

_____

Station Point (SP) (included in key)

_____

Central Vanishing Point (CVP)

_____

(Special) **Vanishing Points** (SVPL/SVPR one-point perspective; VPL/VPR two-point perspective)

_____

_____

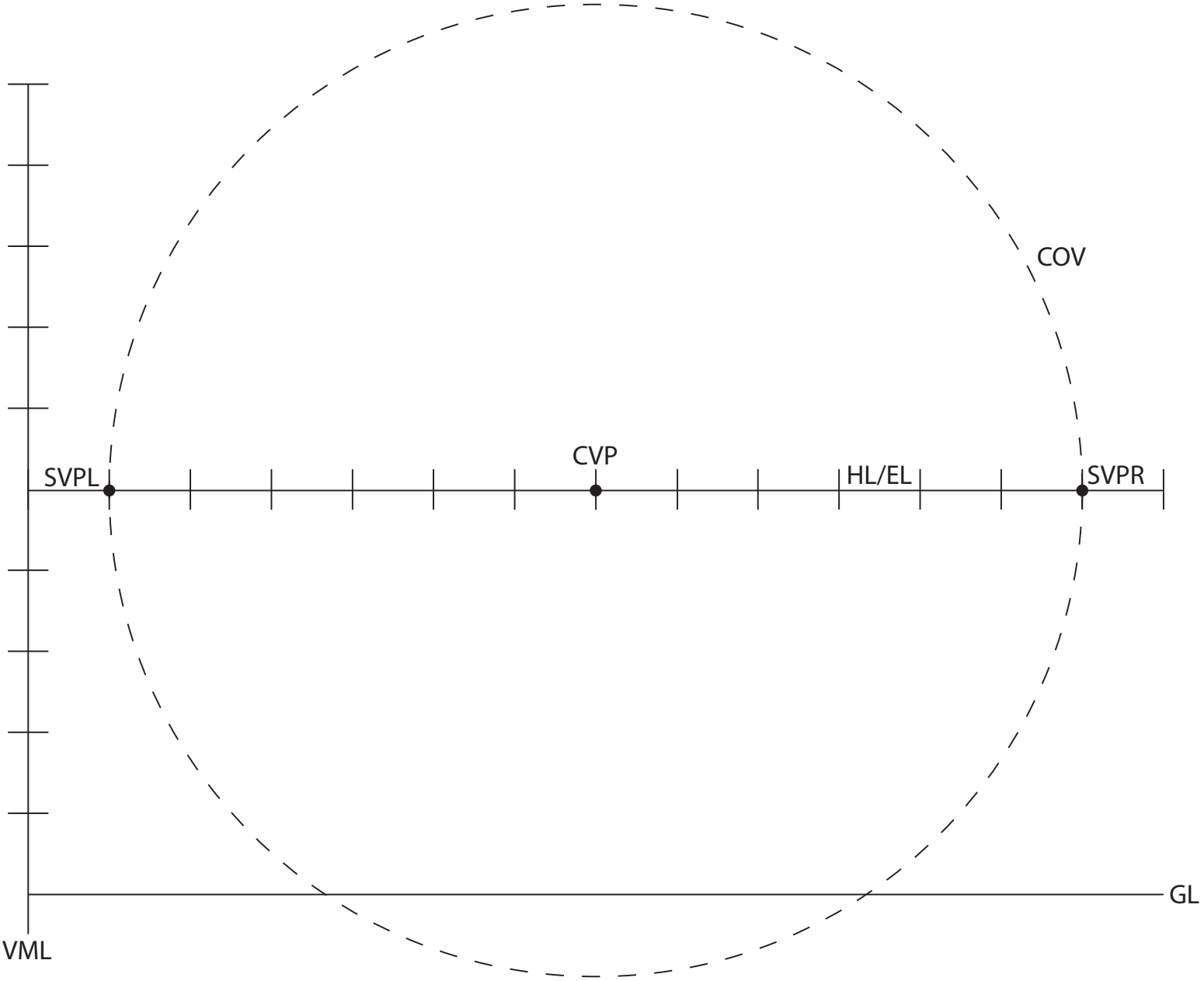
Cone of Vision (COV)

_____

Key Cube (optional)

_____

Perspective and Cubes
One-Point Perspective



KEY

Scale =
Eye Level =
Station Point =

Perspective and Cubes
One-Point Perspective

1. Do I have the right conditions for one-point perspective?

_____

2. Establish Scale

_____

3. Draw the Horizon Line/Eye Level (HL/EL)_____

4. Locate the Central Vanishing Point (CVP)_____

5. Locate special vanishing points left and right (SVPL, SVPR), record Station Point_____

_____

_____

6. Lightly mark horizontal units of measure along the eye-level line that correspond to your scale.

7. Determine the location of the ground line (GL) based on a chosen height for the eye level/horizon line.

_____

_____

8. Lightly mark vertical units of measure that correspond to your scale.

_____

9. Determine the cone of vision (COV), lightly draw the circle._____

_____

10. Draw the front face of the cube (an exact square) on the ground line according to you scale. BE PRECISE!

11. Draw a line of convergence from each corner of the face of the cube to the central vanishing point CVP.

12. Extend a diagonal measuring line (DML) from either bottom corner of the face of the cube to the opposite SVP_____

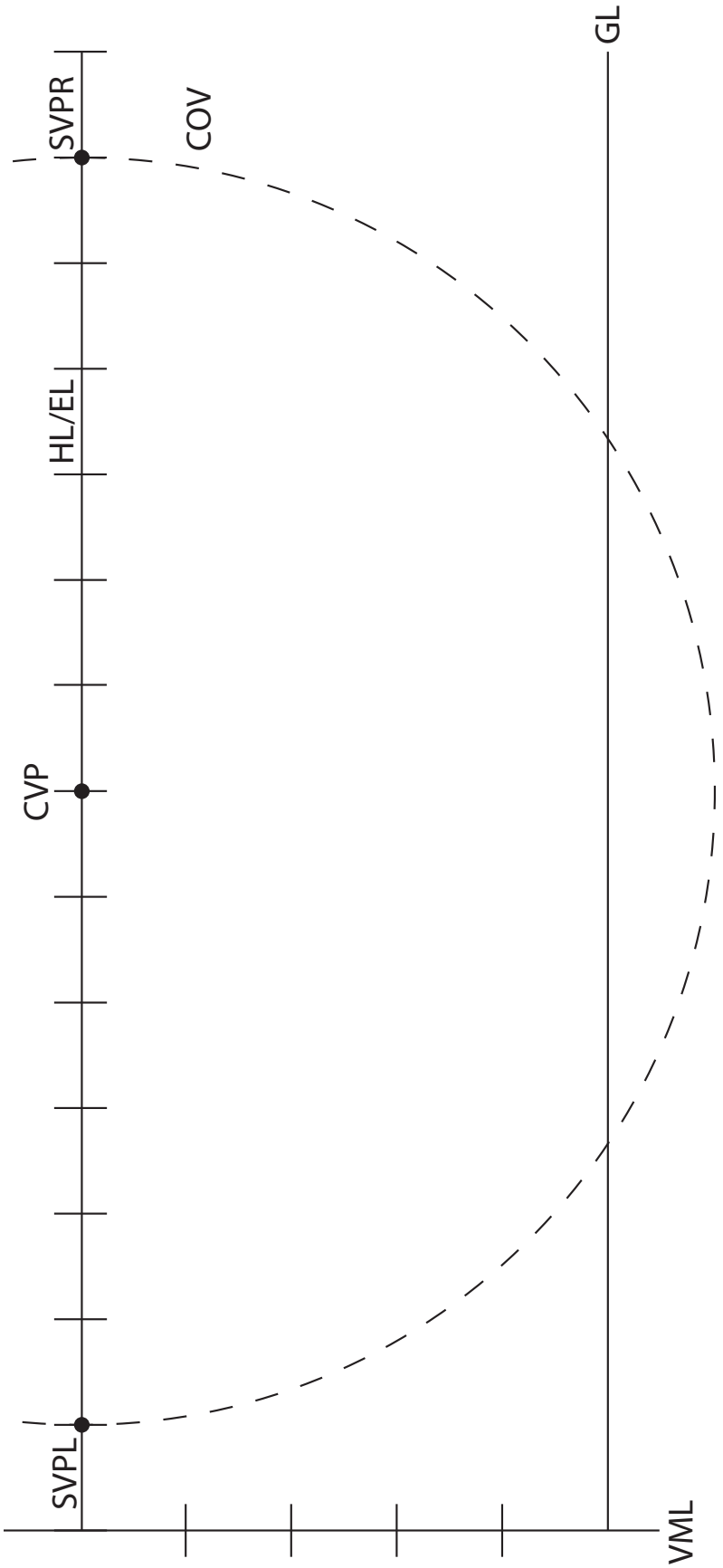
_____

13. Using this point of intersection, build the back face of the cube as an exact square parallel to the front face o the cube and connecting to all lines of convergence._____

14. When drawing multiple cubes, keep all cubes transparent.

Perspective and Gridded Planes

One-Point Perspective



KEY

Scale =

Eye Level =

Station Point =

Perspective and Gridded Planes
One-Point Perspective

1. All preliminary information should be established and drawn:
    - Scale
    - Eye level/horizon line
    - Ground line
    - Station point
    - Central vanishing point
    - Special vanishing points left and right
    - Units of measure along the HL (reflecting scale)
    - Units of measure along the VML (reflecting scale)
    - Cone of vision

2. Construct a 1-point cube whose base rests along the GL and within the cone of vision. Erase all parts of the cube except the base plane. This serves as the first foreshortened square on your gridded plane.

3. Draw a Horizontal Measuring Line (HML). If the base of the square is along the ground line, this will serve as the HML.

4. Mark off increments along the HML that equal the width of the front edge of the cube base. From these increments, draw lines of convergence back to the CVP. Extend the back edge of the original cube base to the left and right, creating the back edge for all foreshortened horizontal squares in the front row.

5. Draw a diagonal measuring line (DML) through the foreshortened square on the far left or right of the front row to the opposite special vanishing point. _____

_____

6. Draw a horizontal line through the points where the diagonal measuring line (DML) intersects each line of convergence. _____

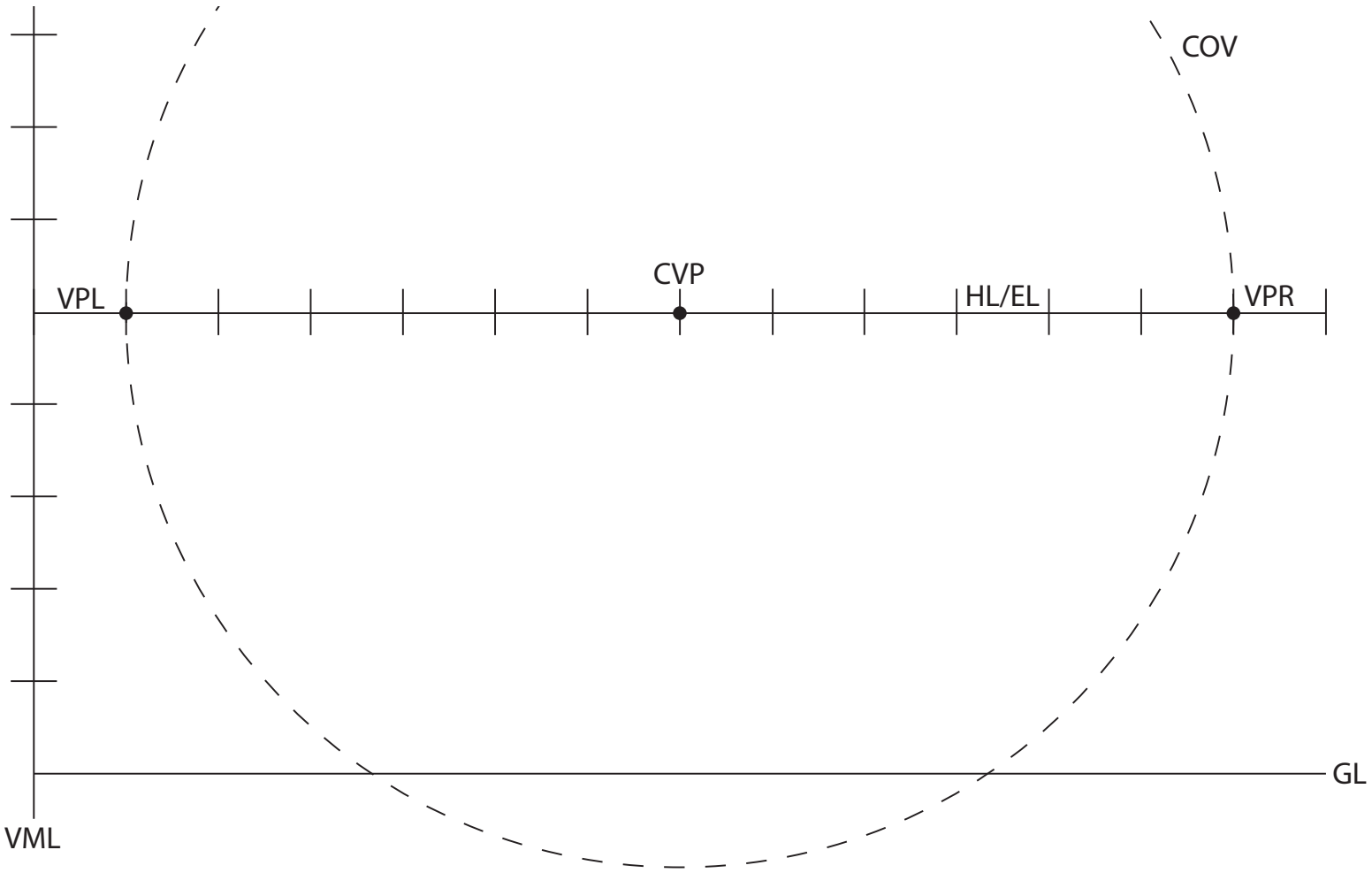
7. Use the DML to the SVPL or SVPR to extend the gridded plane all the way to the horizon line.

8. The width of each square _____ in any horizontal row.

9. Each horizontal row appears _____ from front to back as it recedes in space.

10. Using the gridded ground plane as a guide you can construct corresponding walls and ceiling, constructing a gridded room interior or gridded box interior.

Perspective and Cubes
Two-Point Perspective



KEY

Scale =
Eye Level =
Station Point =

1. Do I have the right conditions for two-point perspective?_____

_____

2. Establish Scale _____

3. Draw the Horizon Line/Eye Level (HL/EL).

4. Locate the Central Vanishing Point (CVP)_____

5. Locate vanishing points left and right (VPL, VPR), record Station Point _____

_____

6. Lightly mark horizontal units of measure along the eye-level line that correspond to your scale.

Perspective and Cubes
Two-Point Perspective

7. Determine the location of the ground line (GL) based on a chosen height for the eye level/horizon line.

_____

_____

8. Lightly mark vertical units of measure that correspond to your scale. _____

9. Determine the cone of vision (COV), lightly draw the circle._____

_____

ESTIMATION BEGINS*
(Other options are to construct exact cubes in 30°/60° 2-pt perspective and 45°/45° 2-pt perspective)

10. Draw the leading edge (front edge) of the cube on the ground line and within the cone of vision.

_____

11. Extend lines of convergence from the top and bottom of the leading edge to both the VPL and VPR (4 separate lines). _____

_____

12. Continue building the cube by estimating the depth of the foreshortened plane based on the visual cues provided:
Leading Edge

_____

_____

Placement of cube in relation to VPL and VPR

_____

_____

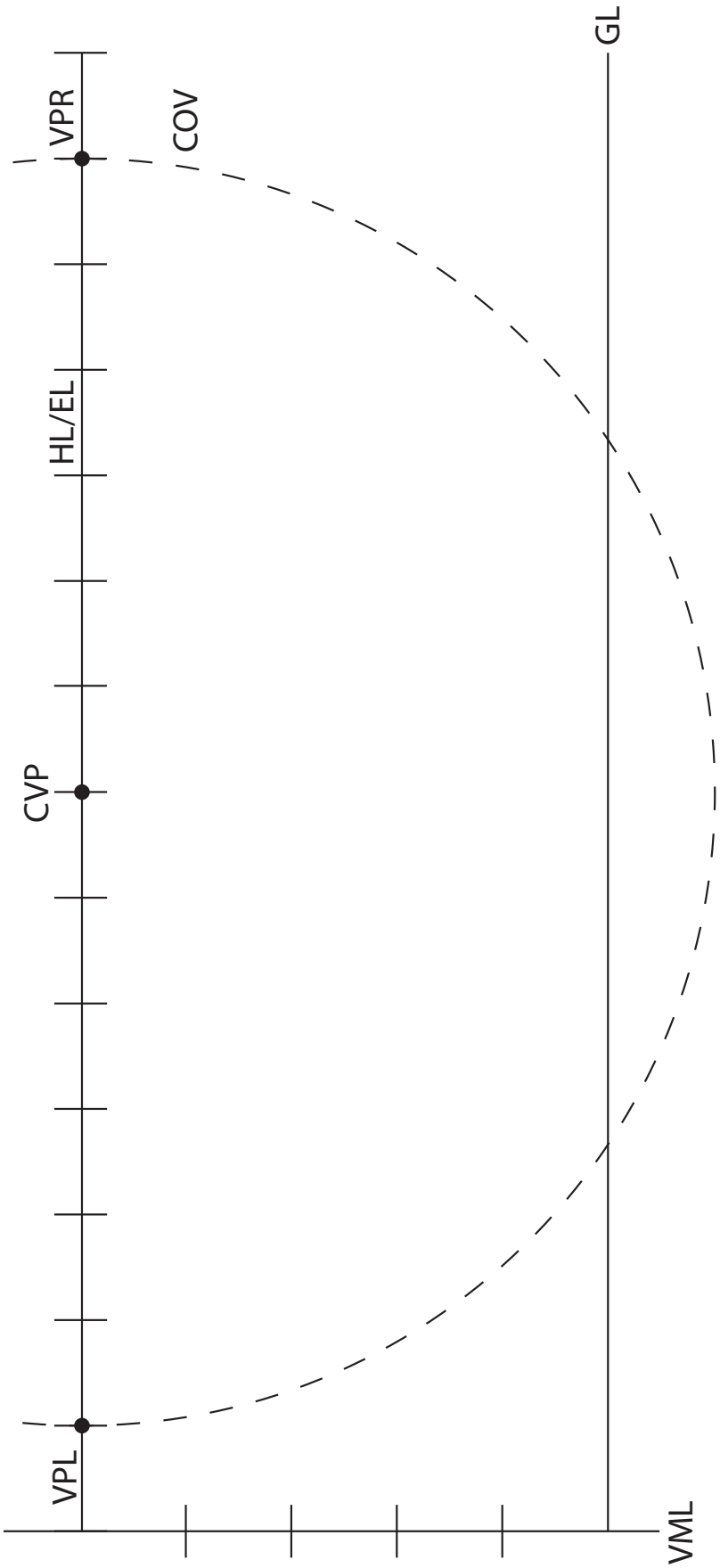
13. When cube depth has been estimated, draw a vertical line between the lines of convergence for both the right and left hand planes.

14. From each of these two vertical edges, draw lines of convergence to the opposite vanishing point from both the top and the bottom of the vertical edge. _____

_____

Perspective and Gridded Planes

Two-Point Perspective



KEY

Scale =

Eye Level =

Station Point =

Perspective and Gridded Planes
Two-Point Perspective

1. All preliminary information should be established and drawn:
    - Scale
    - Eye level/horizon line
    - Ground line
    - Station point
    - Central vanishing point
    - Vanishing points left and right
    - Units of measure along the HL (reflecting scale)
    - Units of measure along the VML (reflecting scale)
    - Cone of vision

2. Construct a 2-point cube below the horizon line and within the cone of vision.

To use the full page, place the _____ along the ground line.

Erase all parts of the cube except the base plane and its lines of convergence to the VPL and VPR, which serves as the first foreshortened square in your 2-point gridded ground plane.

3. *At this point there are different approaches available. We will focus on the *Fencepost method*:

Find the center of your foreshortened square by drawing two corner to corner diagonals and noting their point of intersection.

Draw lines of convergence through this center point to VPL and VPR.

4. Use the Fencepost method for cube multiplication for horizontal planes:

Draw a line back from each forward edge through the center of the opposite edge and extend it until it intersects the original line of convergence.

Where these 2 lines intersect indicates the depth of each additional unit.

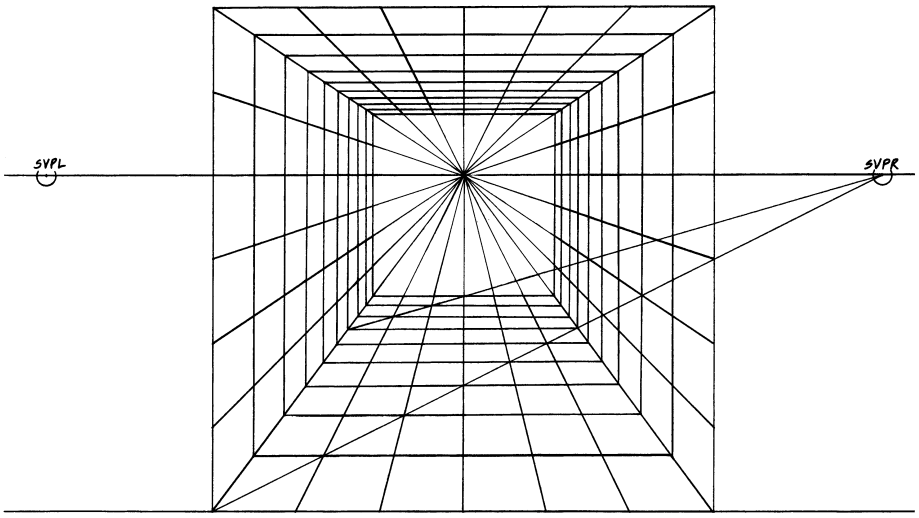
Repeat this process until you have the desired grid.

5. If the grid extends beyond the cone of vision, distortion will occur.

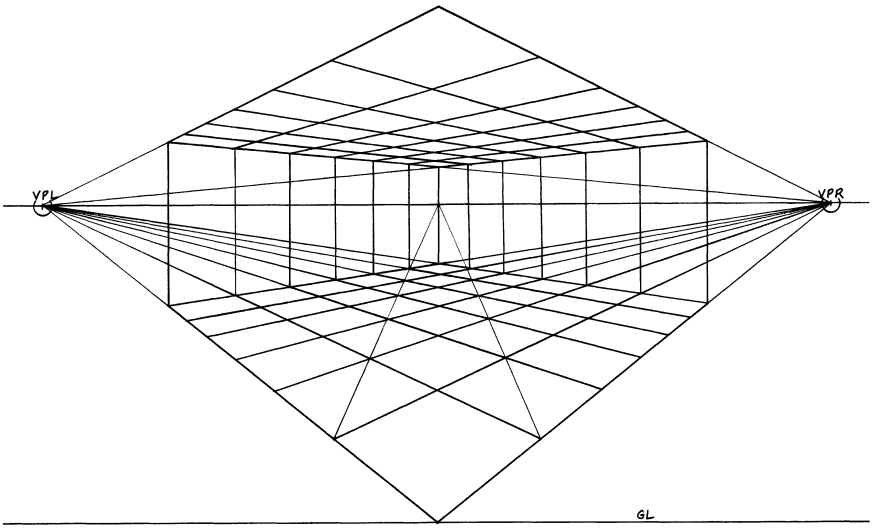
6. Using the gridded ground plane as a guide you can construct corresponding walls and a ceiling, constructing a gridded room interior.

Perspective and Gridded Planes

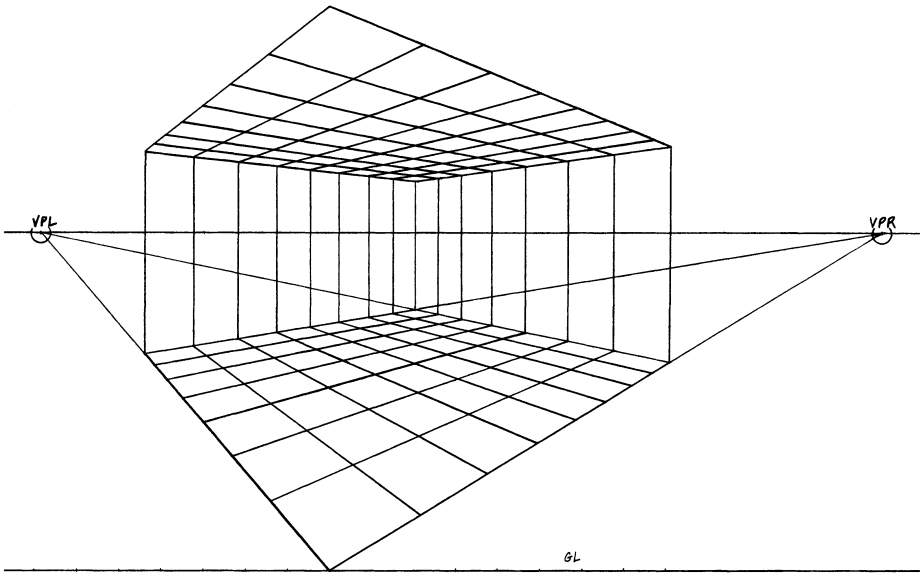
One-Point Perspective



Two-Point Perspective 45/45 view

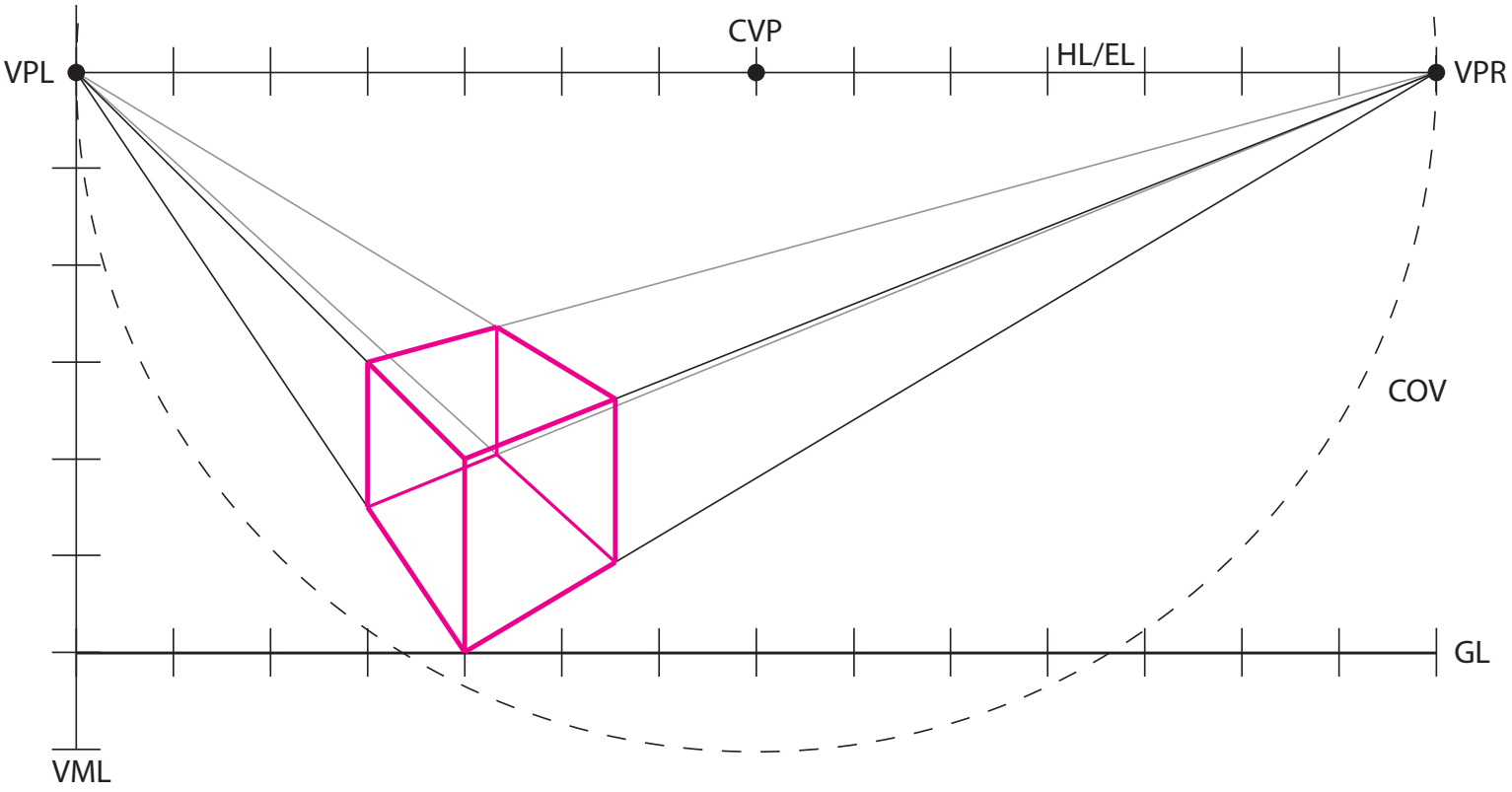


Two-Point Perspective 30/60 view



Perspective and Cube Multiplication
The Fencepost Method

Cube multiplication allows you to repeat a cubic-based form with correct foreshortening and rate of convergence as it recedes along a shared track or corridor of convergence.



1. Bisect the horizontal or vertical plane to be multiplied by constructing corner to corner diagonals. This establishes the _____ of the plane.
Draw a line of convergence from the center to the corresponding vanishing point.

2. To identify the correct depth of the adjacent vertical or horizontal, draw a line from the corner of the front edge of the original plane through the center of the back edge and extend it until it intersects the line of convergence for the original plane. This point of intersection identifies the location of the depth of the repeated plane as it recedes in space.

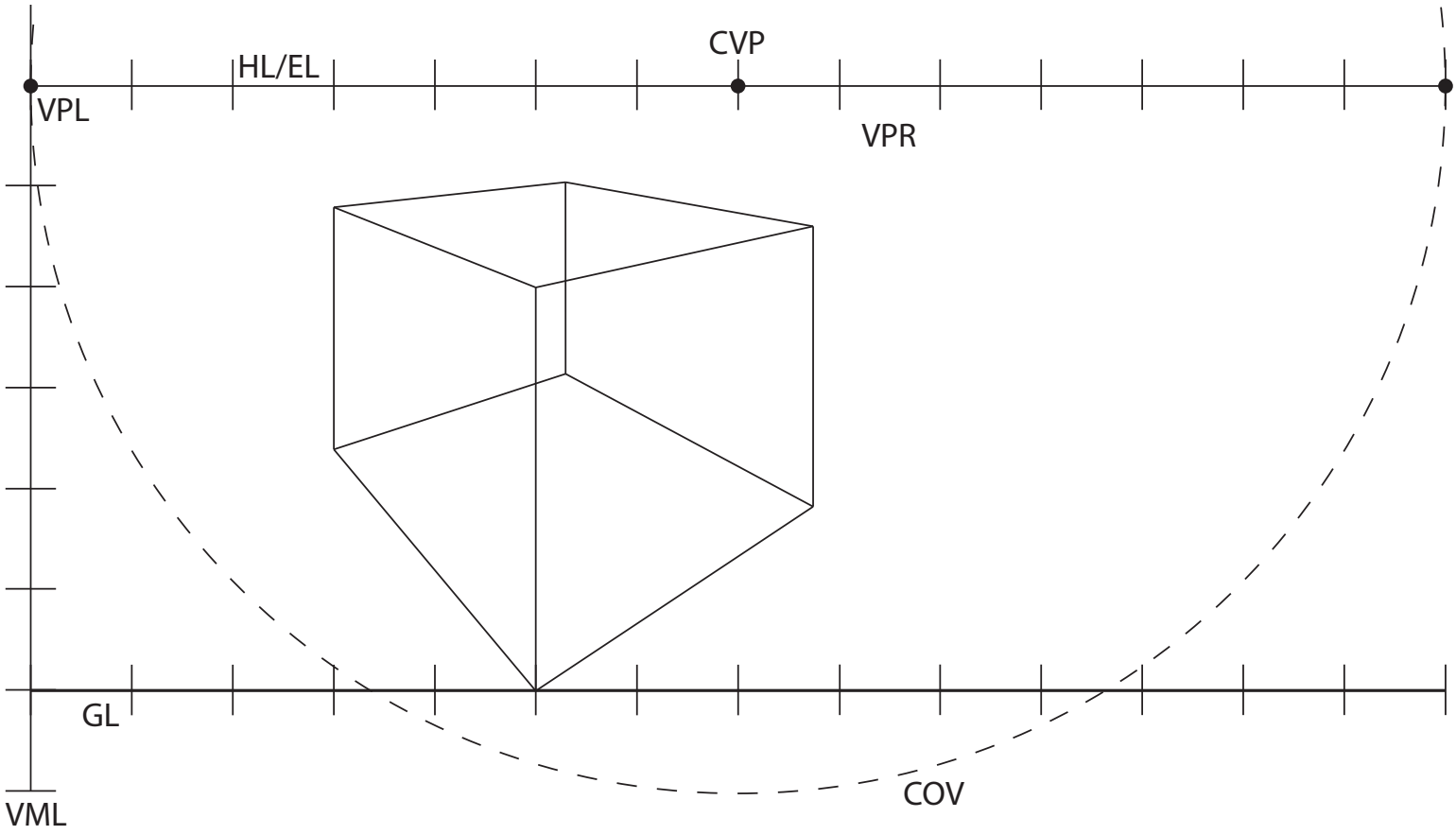
3. Simply complete the cube by constructing the remaining sides of the cube along the corresponding track or corridor of convergence.

4. Repeat the process for each repetition desired.

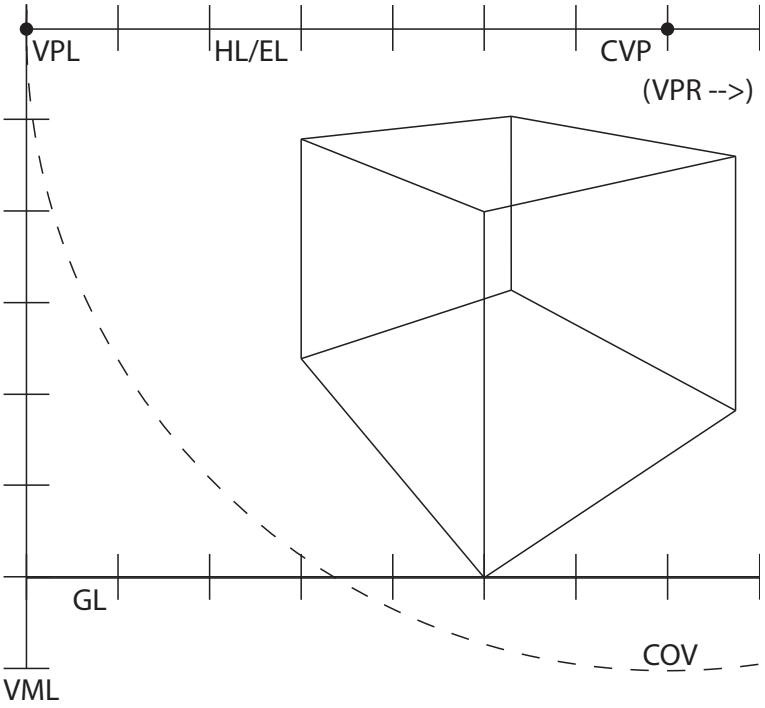
Perspective and Cube Division

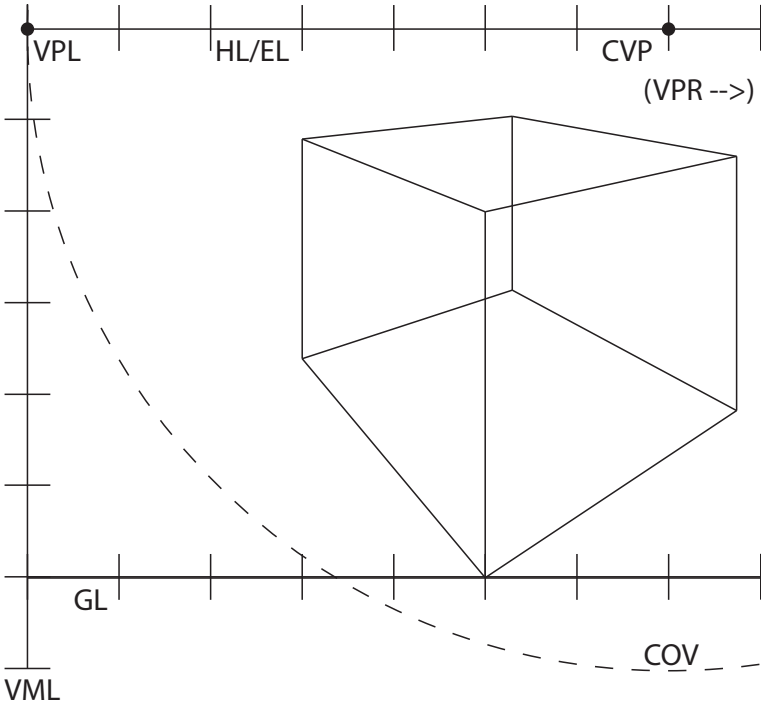
Based on Corner to Corner Diagonals

Allows us to divide and subdivide into increasingly smaller units, carving away sections of a cube.



Geometric Solids





1. Find the center of a plane by locating where 2 diagonals drawn corner to corner intersect.
This allows us to divide and subdivide the cube into increments of ½, ¼, 1/8, 1/16, 1/32, etc.

2. Corner to corner diagonals can also be used to proportionally scale up or scale down or reduce or enlarge a plane.

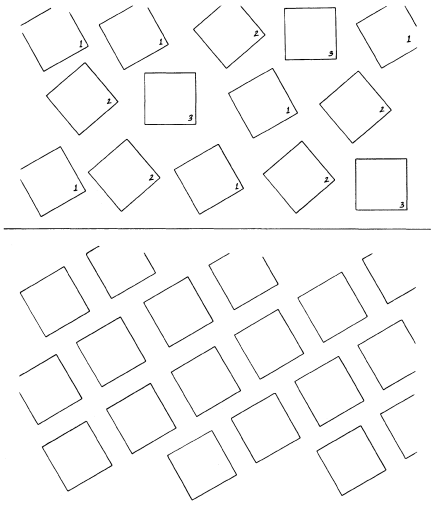
3. Once a point of division has been identified on one plane, the corresponding point can be found on any other plane of the cube by simply wrapping the cube with construction lines that correspond to the vanishing points used to construct the original cube.

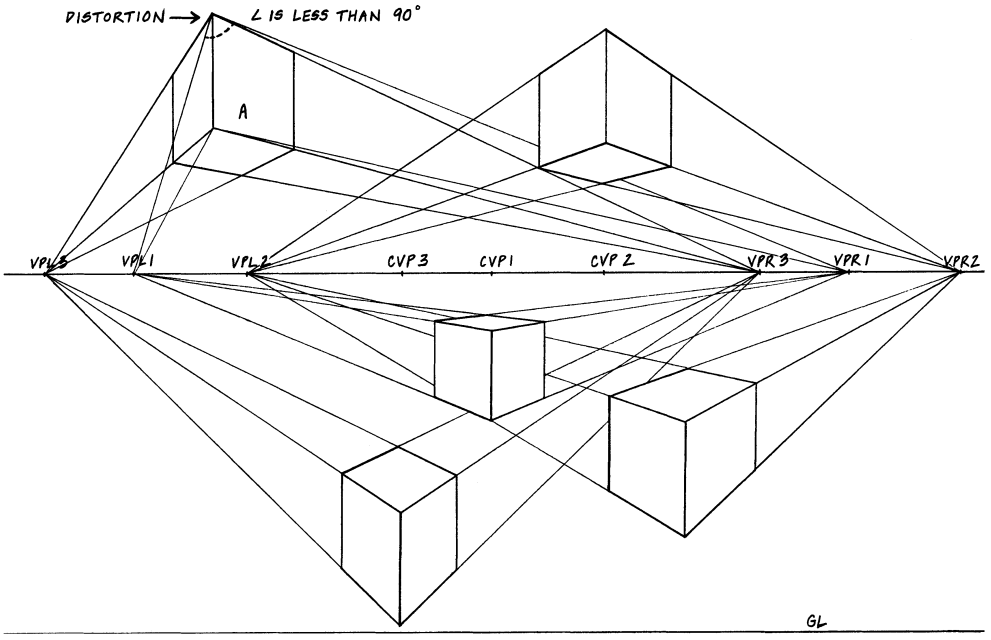
Geometric Solids

Perspective
Multiple Vanishing Points

In 2-point perspective a single set of vanishing points (VPL and VRP) are sufficient as long as all horizontal edges receding to the left are parallel to each other and all horizontal edges receding to the right are parallel to each other.

If cubic forms are not all aligned, multiple sets of vanishing points will be necessary to accommodate the varying rates of convergence.





Because the distance between the vanishing points establishes the station point,
ALL SETS OF VPL AND VPRs MUST BE THE SAME DISTANCE APART.

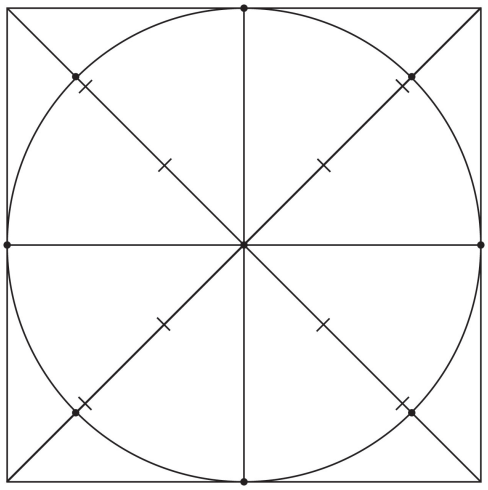
You can use as many sets of vanishing points as necessary. To avoid confusion, make sure they are labeled: VPL/VPR, VPL2/VPR2, VPL3/VPR3, etc.

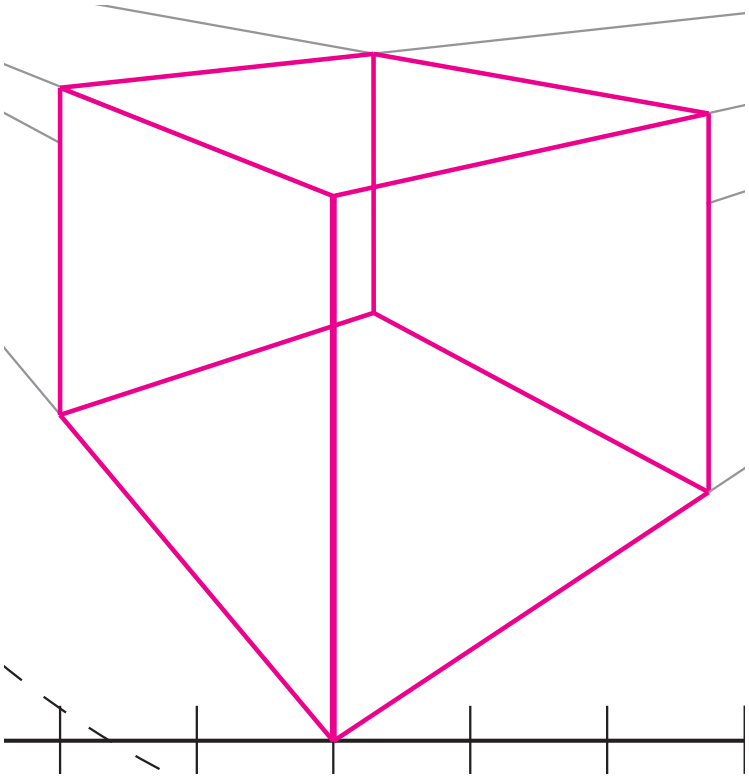
Perspective and Ellipses

An ellipse is a _____ seen in perspective, also called a _____.

A circle fits precisely within a square, touching the exact midpoint of each side of a square and intersecting the squares diagonals in the same two places on each diagonal.

The Eight-Point Tangent System for Ellipse Construction





1. 8 points within a square must be identified to guide the construction of a circle or ellipse.

2. Identify the midpoint of the square by drawing 2 corner to corner diagonals through the square.

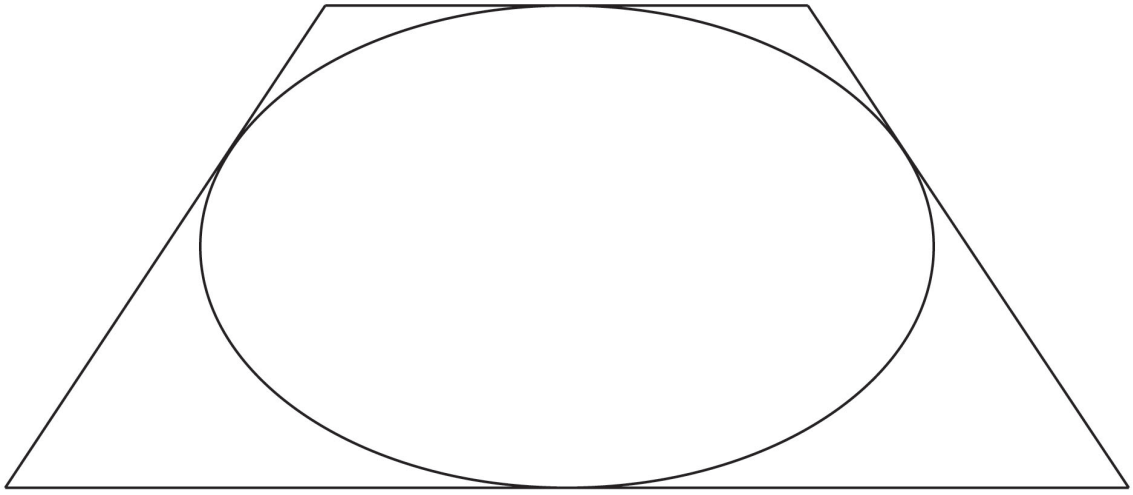
3. Draw a vertical and horizontal line through the center point to each side of the square (in perspective these should converge to the appropriate VP when applicable). (4 of the 8 points)

    This identifies_____.

4. Divide each half diagonal into thirds.
Mark points right outside of the outermost one-third division of each half diagonal. (other 4 of the 8 points)
    This measurement is somewhat flexible, and ok to estimate.
    After identifying only one of these points, you can pull a line originating from that point around the square to determine the other 3 points, using lines of convergence when necessary.

WATCH OUT FOR:
    Flat, high or low spots (wobbles)
    Points or sharpness at the narrowest ends (footballs)
    Correct tilt
    Be able to identify major and minor axes

Perspective and Ellipses
Major and Minor Axes

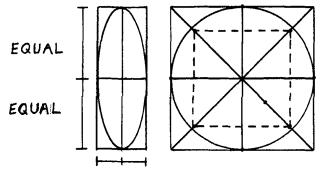


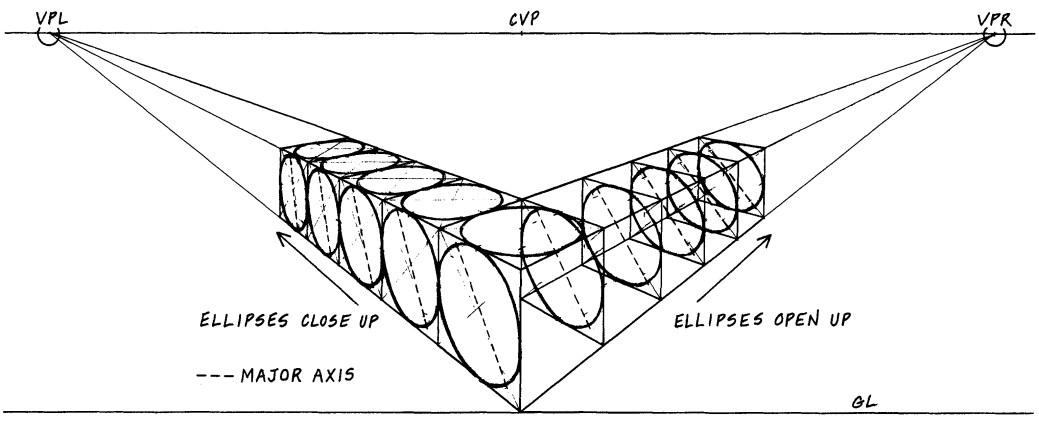
1. The major axis is an imaginary line that bisects the ellipse at its widest or longest point.
2. The minor axis is an imaginary line that bisects the ellipse as its narrowest or shortest point.
3. The major and the minor axes of an ellipse will always remain at _____ degrees to each other.
   These major and minor axes rarely coincide with the diagonal or bisecting lines of the foreshortened square.
   The major axis line falls _____ of the perspective center of the ellipse.

*Note: Elliptical forms drawn within distorted squares are not true or precise ellipses. The 90 degree relationship between the major and minor axes of ellipses is altered.

When a series of ellipses is constructed in the same vertical plane, the major axis will be most strongly angled in the foreground, and as the ellipses recede in space along the vertical plane, the major axis becomes more vertical.

When a series of ellipses is constructed in parallel vertical planes, the opposite is true: The major axis will be closer to vertical in the foreground and will have a stronger diagonal orientation as the ellipses recede in space.





Perspective and Ellipses

As ellipses approach the eye level in a horizontal plane or the central vanishing point in a vertical plane, they appear

_____.

As they move farther to the left or right in a vertical plane or move farther above or below the eye level in a horizontal plane, they appear

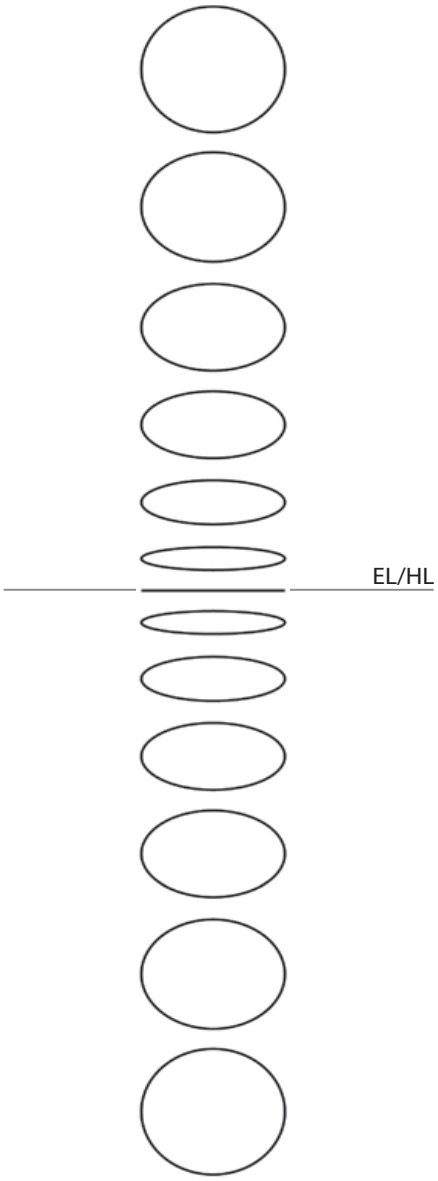
_____.

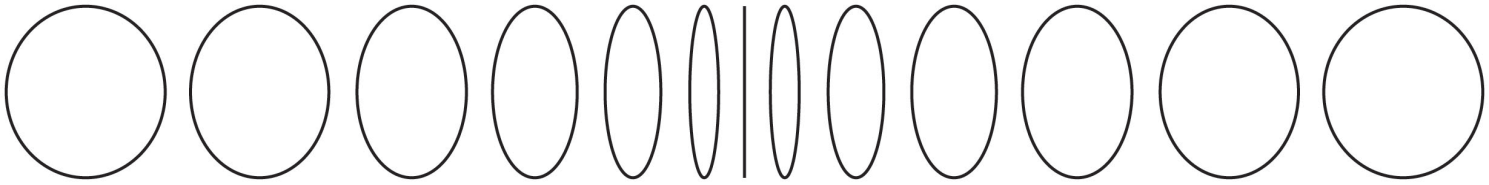
Ellipses can be very full when seen in relation to a square that is only minimally foreshortened, appearing to be nearly a

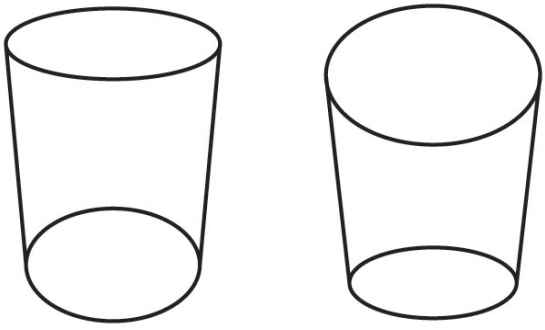
_____.

When seen in relation to a square that is extremely foreshortened, ellipses can be very thin, appearing to be nearly a

_____.







When ellipses are positioned close to each other as part of the same form, such as the top and bottom of a drinking glass, they must correspond correctly to each other to convey that the glass is seen from a fixed viewpoint. Otherwise the results are visually confusing.