What Is Axonometric Drawing?

Worksheet

Axonometric drawing is a 3D parallel projection where the object is rotated so all three axes (x, y, z) are visible at once, and - unlike perspective - parallel lines stay parallel with no vanishing points.

Questions

1. What defines axonometric drawing?

A) Lines converge to vanishing points
B) Parallel projection with all axes measurable
C) Only used for interiors
D) Requires a horizon line

2. In true isometric drawing, the angle between the three axes is

A) 90
B) 60
C) 120
D) 45

3. Using L'=L0.816, a 10 m true length is drawn at

A) 8.16 m
B) 10 m
C) 6.53 m
D) 12.25 m

4. Which is NOT a type of axonometric drawing?

A) Isometric
B) Dimetric
C) Trimetric
D) One-point perspective

5. Using L'=L0.816, find the drawn length of a 5 m wall edge in a true isometric drawing.

6. A 3.6 m column height needs to be drawn in isometric. What length should it be drawn at?

7. In an isometric drawing, the three axes are drawn at what angles to the horizontal?

8. Define: What is axonometric drawing?

9. Define: What angle separates the axes in true isometric drawing?

10. Define: What is the isometric foreshortening factor?

Answer Key

1. B) Parallel projection with all axes measurable - Axonometric projection is parallel, keeping every axis measurable at a fixed scale.

2. C) 120 - The three isometric axes are equally spaced at 120.

3. A) 8.16 m - 10 0.816 = 8.16 m.

4. D) One-point perspective - One-point perspective is not axonometric - it uses a vanishing point, unlike parallel-projection axonometric types.

5. L' = L 0.816 L' = 5 0.816 L' = 4.08 m on the drawing

6. L' = 3.6 0.816 L' = 2.94 m (rounded to 2 decimals)

7. Isometric axes are spaced 120 apart Typically drawn as one vertical axis (90) and two axes at 30 above horizontal on either side This keeps foreshortening equal on all three axes

8. A parallel (non-perspective) 3D projection showing all three axes of a building in one drawing, at true or fixed scale.

9. 120 between each of the three axes.

10. About 0.816 (cos 35.26) - though many practical isometric drawings skip foreshortening and use true length for simplicity.