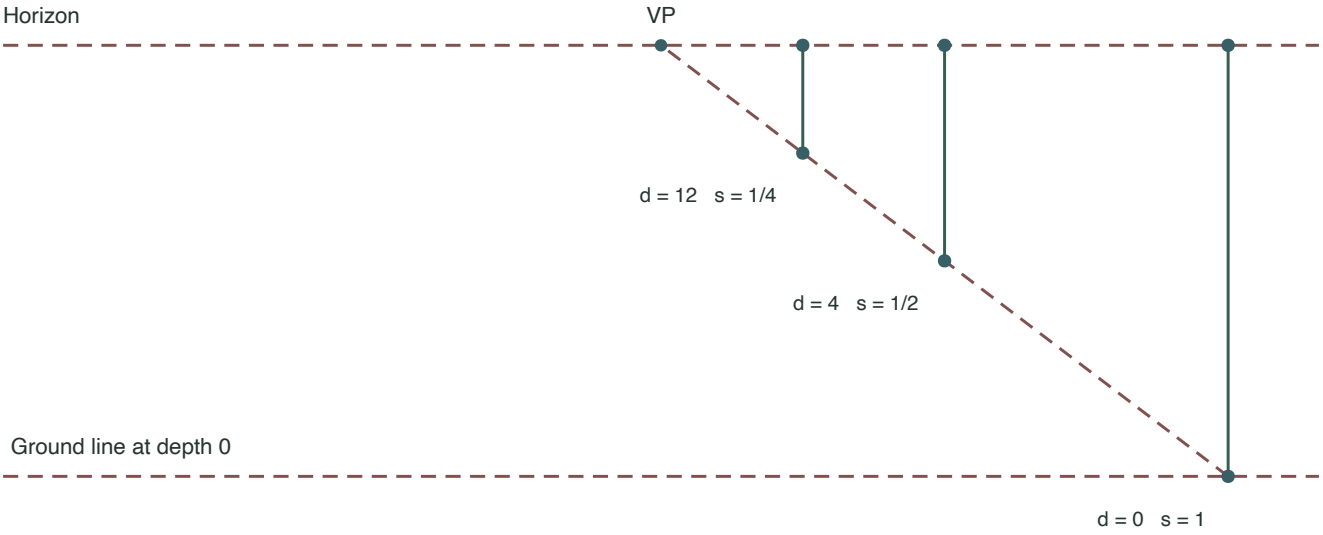
Perspective Drawing Formulas

Reference | Worked example | A4

Original prompt

Construct a one-point perspective with eye height h = 4, horizon line, vanishing point, ground line, and three vertical posts at depths 0, 4, and 12, each of true height 4 units.

For this construction, eye height h and eye-to-picture-plane distance f are both 4 units.



Drawn heights: 4, 2 and 1 units. All tops share the horizon.

Answer

Post at d = 0: s = 4/(4+0) = 1, height 4. Post at d = 4: s = 4/(4+4) = 0.5, height 2. Post at d = 12: s = 4/(4+12) = 0.25, height 1. The three post tops align on a line converging to the vanishing point.

Reasoning

With the eye-to-plane distance f chosen equal to h = 4, similar triangles give s = 4/(4+d). Multiply the true post height by s. The top of every post is at eye height, so all three tops fall along the horizon toward the vanishing point.

Check

Verify each scale factor by substitution, then confirm the post tops lie on a straight line toward the vanishing point.