Realistic Libra Scale Drawing: Beam, Pans, and Chains

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a scale with a 14 cm pillar, a 10 cm beam, and attachment points 4 cm from center. Check symmetry and state your measurements.

Answer: Beam total 10 cm; each side 5 cm; attachments at 4 cm left and 4 cm right; overhang 1 cm each end. Pillar height 14 cm. Pans equal width, for example 3.5 cm each.

Reason: The beam is centered, so half-length is 5 cm. Attachments at 4 cm leave 1 cm overhang. Equal left and right values create balance.

Check: Measure center to left attachment and center to right attachment; both should be 4.0 cm. Measure beam ends from center; both should be 5.0 cm.

Task 2

A drawing has a left chain drop of 3.2 cm and a right chain drop of 2.8 cm. What adjustment makes the pans level, and what is the new common drop if you average?

Answer: Shorten the left chain by 0.4 cm or lengthen the right by 0.4 cm. The average drop is (3.2 + 2.8) / 2 = 3.0 cm.

Reason: Level pans need equal vertical drops. Adjusting one side by the difference makes them equal. The average gives a common target.

Check: After adjustment, measure both drops; they should both read 3.0 cm if using the average.

Task 3

Draw two pans 4 cm wide with three chains each. The left pan rim points are at 0 cm, 2 cm, and 4 cm across the rim. Where should the right pan rim points be for symmetry?

Answer: The right pan rim points should also be at 0 cm, 2 cm, and 4 cm across its own rim, measured from its left edge.

Reason: Symmetry means each pan uses the same relative rim positions for its three chains.

Check: Measure each pan rim and confirm the three chain meeting points divide the rim into equal segments on both pans.

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Original tasks 4 / complete keys

Task 4

Using light from upper left, describe the tone for the beam top edge, beam lower edge, and the inside of the right pan. Use light, medium, or dark.

Answer: Beam top edge: light. Beam lower edge: medium. Inside of right pan: medium to dark.

Reason: Upper-left light hits top and left surfaces; lower and right-facing surfaces receive less light.

Check: Check that every shaded surface follows the same upper-left light arrow; no surface facing upper left should be dark.

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Source rubric / reflection

- [ ] Pillar is vertical and symmetric within 0.5 cm at three measured heights.
- [ ] Beam is horizontal and centered; left and right attachment distances match within 0.5 cm.
- [ ] Both pans have equal rim width and depth within 0.5 cm.
- [ ] Three chains per pan meet the rim at balanced points; chain drops match within 0.5 cm.
- [ ] Shading follows one stated light direction; three tone levels are visible.
- [ ] Valid alternative styles (cross-hatching, stippling, blending) are accepted if consistent.

Reflection: What did you check, what did you change, and what will you try next?