Loomis Head Construction: Sphere, Planes, and Feature Placement

Original tasks 1, 2, 3 / complete keys

Task 1

A sphere has diameter 12 cm. The brow line is at the horizontal center. The chin is 6 cm below the sphere bottom. Calculate the distance from brow line to chin and the nose base position.

Answer: Brow line to chin is 12 cm. Nose base is 6 cm below the brow line.

Reason: The brow line is 6 cm from the top. The chin is 6 cm below the bottom. Total distance is 6 + 6 = 12 cm. Half is 6 cm.

Check: Measure the sphere diameter, confirm brow line at center, and verify nose base is the midpoint between brow line and chin.

Task 2

For a 12 cm sphere, the brow line is at the horizontal center and the chin is 6 cm below the sphere bottom. The nose base is halfway from brow to chin. Find the mouth line if it is one-third of the distance from the nose base to the chin.

Answer: The mouth line is 2 cm below the nose base.

Reason: Nose base to chin is 6 cm. One-third of 6 cm is 2 cm.

Check: Measure from nose base to chin and confirm the mouth line divides it into 2 cm and 4 cm segments.

Task 3

A learner draws side planes 2 cm in from each edge of a 12 cm sphere. The radius is 6 cm. Is this about one-third of the radius?

Answer: Yes, 2 cm is about one-third of 6 cm.

Reason: One-third of the radius 6 cm is 2 cm. The side planes are balanced.

Check: Measure both side plane distances from the edges and confirm they are equal and about one-third of the radius.

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Original tasks 4 / complete keys

Task 4

A 10 cm sphere has its brow line at the horizontal center and its chin 5 cm below the sphere bottom, so the brow-to-chin distance is 10 cm. A draft places the eyes on the brow line, the nose base 4 cm below the brow, and a vertical ear-position marker on the face axis. Identify and correct all three placements.

Answer: Move the eye line slightly below the brow. Move the nose base from 4 cm to 5 cm below the brow, the midpoint of the 10 cm brow-to-chin distance. Move the custom vertical ear-position marker off the face axis and onto the side plane near its outer edge; keep the nose base and mouth centered on the face axis.

Reason: The lesson places eyes slightly below the brow, the nose base halfway from brow to chin, and the vertical ear-position marker on the side plane. The stated measurements make the correct nose-base coordinate checkable.

Check: Confirm the eye line is below the brow, the nose base is exactly 5 cm below it, and the vertical ear-position marker is separate from the face axis on the side plane. Confirm eyes straddle the axis while nose base and mouth center on it.

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Source rubric / reflection

- [ ] Sphere is circular and centered on the page.
- [ ] Vertical and horizontal center lines are present and cross at the sphere center.
- [ ] Brow line is horizontal and at the center.
- [ ] A custom vertical ear-position marker is separate from the face axis and placed near the outer edge of the side plane.
- [ ] Two side planes are drawn as vertical arcs, balanced left and right.
- [ ] Eye line is slightly below the brow line.
- [ ] Nose base is halfway between brow line and chin.
- [ ] Mouth line is one-third from nose base to chin.
- [ ] Eyes straddle the face axis; the nose base and mouth center on it.
- [ ] Ear tops align with brow line and ear bottoms with nose base.
- [ ] Valid alternatives are accepted if the checks above hold.

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