Head Proportions Drawing: Feature Placement Guides

Original tasks 1, 2 / complete keys

Task 1

A head oval has H = 80 mm. Compute the eye line and nose line positions from the top. State the ear top and ear bottom alignment. Show your arithmetic.

Answer: Eye line = 80/2 = 40 mm from top. Nose line = 3×80/4 = 60 mm from top. Ear top aligns at 40 mm from top; ear bottom aligns near 60 mm from top.

Reason: The construction uses fractions of H: eye line at H/2, nose line at 3H/4, ear top at H/2, ear bottom near 3H/4. Substituting H = 80 mm gives 40 mm and 60 mm.

Check: Measure from the oval top to each guide with a ruler; confirm 40 mm and 60 mm within a few millimeters. Confirm ear top and bottom align with those levels.

Task 2

A head oval has H = 120 mm. The oval width at the eye line is 72 mm. Divide the eye line into five equal parts and state the width of each part and the eye center positions from the left edge of the oval at that height.

Answer: Each part = 72/5 = 14.4 mm. Eye centers sit at the boundaries of the central part: 14.4 mm from the left edge and 72 − 14.4 = 57.6 mm from the left edge. The central space between eyes is 14.4 mm, and each eye width is 14.4 mm.

Reason: The five-part guide divides the oval width at the eye line into equal segments. The central segment is the inter-eye space; the adjacent segments define eye widths. Eye centers are at the inner boundaries of the second and fourth segments.

Check: Measure the oval width at the eye line and divide by five. Mark the boundaries and confirm the central space and eye widths are equal within a few millimeters.

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Original tasks 3, 4 / complete keys

Task 3

A student draws a head oval with H = 90 mm but places the eye line at 50 mm from the top and the nose line at 70 mm from the top. Using the construction fractions, state the correct positions and the deviations in millimeters.

Answer: Correct eye line = 90/2 = 45 mm from top; deviation = 50 − 45 = 5 mm too low. Correct nose line = 3×90/4 = 67.5 mm from top; deviation = 70 − 67.5 = 2.5 mm too low. Ear top should be at 45 mm and ear bottom near 67.5 mm.

Reason: Compare the student's placements to the computed fractions. Subtract the correct value from the drawn value to find the deviation and direction.

Check: Measure the student's guides from the oval top and compare to 45 mm and 67.5 mm. Confirm the deviations are 5 mm and 2.5 mm.

Task 4

A head oval has H = 150 mm. Compute the eye line, nose line, and ear line positions. Then state one valid alternative eye-spacing adjustment if the oval is noticeably wider than the 2:3 example, and explain why it is acceptable.

Answer: Eye line = 150/2 = 75 mm from top. Nose line = 3×150/4 = 112.5 mm from top. Ear top = 75 mm from top; ear bottom near 112.5 mm from top. A valid alternative is to widen the central inter-eye space slightly while keeping the five-part division logic and preserving equal eye widths; this is acceptable because the convention allows variation in eye spacing as long as the proportional relationships and checkable divisions remain coherent.

Reason: The vertical fractions are fixed by H. For a wider oval, the five-part guide still applies to the measured width at the eye line; adjusting the central space is a permitted variation that preserves the construction logic.

Check: Measure the vertical guides against 75 mm and 112.5 mm. For the eye line, measure the oval width, divide by five, and confirm the adjusted spacing still uses equal parts and symmetric eye centers.

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Source rubric / reflection

- [ ] Head oval is taller than wide and has a clear vertical axis.
- [ ] Eye line is at H/2 from the top within a few millimeters.
- [ ] Nose line is at 3H/4 from the top within a few millimeters.
- [ ] Ear top aligns with the eye line and ear bottom is near the nose line.
- [ ] Eye line is divided into five equal parts across the oval width at that height.
- [ ] Guides are light and adjustable; arithmetic checks are recorded.
- [ ] Valid alternatives are accepted when proportional relationships are preserved.

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