Skull Proportion Landmarks: A Drawing Guide

Original tasks 1, 2 / complete keys

Task 1

A skull drawing has total height 10 cm. Mark the halfway point and the quarter points. The eye socket centers are placed at 2 cm from the midline on each side. The cranial width is 7 cm. Calculate the expected socket center distance from the midline using the one-quarter width convention, and state whether the drawing matches.

Answer: One-quarter of 7 cm is 1.75 cm. The drawing uses 2 cm, which is close but slightly wider. Accept either 1.75 cm as the convention value or 2 cm as a valid alternative if the symmetry check passes.

Reason: The convention places socket centers at one-quarter of total width from the midline. 7 divided by 4 equals 1.75. The drawing's 2 cm is a small deviation, so note it and check symmetry.

Check: Measure both socket centers from the midline; they should be equal. Compare each to 1.75 cm and record the difference.

Task 2

A skull drawing has total height 16 cm. The nasal aperture top is marked at 10 cm from the top. The lower third mark is at 10.67 cm. Is the aperture top close to the lower third convention? Show the arithmetic.

Answer: The lower third mark is 16 divided by 3, which equals 5.33 cm from the bottom, or 10.67 cm from the top. The aperture top at 10 cm is 0.67 cm above the convention. This is a small deviation and acceptable if the aperture remains below the sockets.

Reason: The lower third is calculated from total height. 16 divided by 3 equals 5.33 from the bottom. Subtracting from 16 gives 10.67 from the top. The difference is 0.67 cm.

Check: Measure the aperture top from the top edge and compare to 10.67 cm. Also check that the aperture top is below the socket bottoms.

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Original tasks 3, 4 / complete keys

Task 3

A skull drawing has cranial width 9 cm and jaw width 10 cm. The teeth line is marked at 2 cm above the jaw bottom, and the aperture bottom is at 5 cm above the jaw bottom. According to the convention, the teeth line should be halfway between the aperture bottom and the jaw bottom. Calculate the correct teeth line height and state the fix.

Answer: Halfway between 0 cm (jaw bottom) and 5 cm (aperture bottom) is 2.5 cm. The drawn teeth line at 2 cm is 0.5 cm too low. Move the teeth line up to 2.5 cm. Also reduce jaw width to less than 9 cm, for example 8 cm.

Reason: The teeth line convention is the midpoint of the aperture bottom and jaw bottom. 5 divided by 2 equals 2.5. The jaw width error is separate: jaw must be narrower than cranial width.

Check: Measure from jaw bottom to teeth line and from teeth line to aperture bottom; these should be equal. Measure jaw width and compare to cranial width.

Task 4

A skull drawing has total height 14 cm. The halfway mark is at 7 cm. The eye socket centers are 3 cm from the midline on the left and 3 cm on the right. The nasal aperture is centered. The jaw width is 6 cm and cranial width is 8 cm. Run all three arithmetic checks and state whether the drawing passes.

Answer: Check 1: 14 divided by 2 equals 7, so the halfway mark passes. Check 2: socket centers are both 3 cm from the midline, so symmetry passes. Check 3: jaw width 6 cm is less than cranial width 8 cm, so the jaw check passes. The drawing passes all three checks.

Reason: Each check uses simple arithmetic: halving total height, comparing left and right socket distances, and comparing jaw to cranial width. All values satisfy the stated conditions.

Check: Re-measure each value with a ruler and confirm the arithmetic. If any measurement differs, adjust the landmark and repeat the check.

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Source rubric / reflection

- [ ] Midline is vertical and landmarks are marked lightly.
- [ ] Total height is measured and the halfway mark is correct.
- [ ] Eye socket centers are equidistant from the midline within a small margin.
- [ ] Nasal aperture is centered and sits below the sockets.
- [ ] Jaw width is narrower than cranial width.
- [ ] Teeth line is marked before individual teeth are drawn.
- [ ] Arithmetic checks are shown or described.
- [ ] Valid alternative proportions are accepted if the checks pass and the reasoning is stated.

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