How to Draw Eyes to Scale: Proportional Ratios and Measured Lid Spans

Original tasks 1, 2, 3 / complete keys

Task 1

A head box has width W = 15 cm. Using E = W/5, lid span = E, and eye height = E/2, calculate E, lid span, and eye height.

Answer: E = 3 cm, lid span = 3 cm, eye height = 1.5 cm.

Reason: Divide 15 by 5 to get E = 3 cm. Lid span equals E, so 3 cm. Eye height is half of E, so 1.5 cm.

Check: Multiply E by 5 to recover W: 3 × 5 = 15 cm. Double the eye height to recover E: 1.5 × 2 = 3 cm.

Task 2

A head box has width W = 24 cm. Using E = W/6, a gap of 1E between the eyes, and two eyes each with lid span E, calculate the total span of two eyes plus the gap and the combined side margins.

Answer: E = 4 cm, total span = 12 cm, combined side margins = 12 cm.

Reason: E = 24/6 = 4 cm. Two eyes plus gap = 2E + 1E = 3E = 12 cm. Combined margins = 24 - 12 = 12 cm.

Check: Add the total span and combined margins: 12 + 12 = 24 cm, which equals W.

Task 3

A drawing uses E = 2.5 cm and a lid span range from 0.9E to 1.1E. Calculate the minimum and maximum acceptable lid span in centimeters.

Answer: Minimum = 2.25 cm, maximum = 2.75 cm.

Reason: 0.9 × 2.5 = 2.25 cm and 1.1 × 2.5 = 2.75 cm. The range allows valid stylistic variation around the target E.

Check: The target E = 2.5 cm lies between 2.25 and 2.75, and the range width is 0.5 cm, which equals 0.2E.

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Original tasks 4 / complete keys

Task 4

A head box is 18 cm wide. You choose E = W/4.5 and a gap of 1E. Calculate E, the total span of two eyes plus the gap, and the combined side margins. State whether the side margins are positive.

Answer: E = 4 cm, total span = 12 cm, combined side margins = 6 cm, and the margins are positive.

Reason: 18/4.5 = 4 cm. Two eyes plus gap = 3E = 12 cm. Combined margins = 18 - 12 = 6 cm, which is greater than zero.

Check: Add total span and combined margins: 12 + 6 = 18 cm, matching W. Positive margins confirm the layout fits.

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Source rubric / reflection

- [ ] Head width W and height H are labeled with consistent units.
- [ ] A ratio such as E = W/5 is stated before drawing, with any stylistic range noted.
- [ ] Lid span is measured between the outer and inner corners and matches the chosen ratio within the stated range.
- [ ] Eye height is measured vertically and matches the chosen ratio within the stated range.
- [ ] Both eyes use the same unit E and the gap is checked arithmetically.
- [ ] Valid alternative eye shapes are accepted if the recorded ratios and measurements are consistent.

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