Draw a Head from Sphere, Box and Wedge Masses

Original tasks 1, 2 / complete keys

Task 1

Draw a front-view head using a sphere 8 cm wide, a jaw box 5 cm wide, and a wedge 6 cm long. Label S, B, W and record the two ratios.

Answer: A front-view drawing with a circle 8 cm wide, a rectangle 5 cm wide touching the circle at the cheek line, and a downward triangle 6 cm long from brow to chin. Labels S, B, W appear. Ratios: 5/8 = 0.625 and 6/8 = 0.75. These are this drawing's own recorded ratios, not the five-sixths example from the worked example.

Reason: The sphere sets the cranium, the box sets the jaw, and the wedge sets the face plane. The ratios check whether the masses are proportionally related.

Check: Measure the sphere diameter and jaw width with a ruler; divide jaw width by sphere diameter. Measure wedge length and divide by sphere diameter. Confirm the box top edge touches the sphere. Compare the ratios with the values you recorded for this drawing, not with the worked example's five-sixths.

Task 2

Redraw the same masses in three-quarter view. Keep the sphere 8 cm wide and the jaw box 5 cm wide. Describe where the wedge shifts.

Answer: The sphere stays a circle 8 cm wide, the box shows two faces and stays 5 cm wide overall, and the wedge shifts toward the far side while still running from brow to chin. Labels S, B, W remain.

Reason: Rotating the masses changes their outline, not their measured sizes. The wedge shifts because the face plane turns away from the viewer.

Check: Measure the sphere circle diameter and the box width; confirm they match the front-view values. Check that the box still sits under the sphere and the wedge connects brow to chin.

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Original tasks 3, 4 / complete keys

Task 3

A profile drawing shows a sphere 7 cm wide, a jaw box 5 cm wide, and a wedge 4 cm long. The jaw box top edge is 0.5 cm above the cheek line. Identify the error and state a fix.

Answer: The jaw box is too high. Lower it until its top edge meets the cheek line. The wedge length of 4 cm is not automatically an error; record it and check it against the ratio you chose for the set, noting any deliberate variation.

Reason: The box must touch the cheek line. Wedge length is judged against the student's recorded ratio, not a fixed target, so the main definite error is the raised box.

Check: Measure the gap between box top and cheek line; it should be zero. Divide wedge length by sphere diameter; compare with your chosen range.

Task 4

Create a three-angle set with a sphere 6 cm wide. Choose jaw box width and wedge length, record the ratios, and note one valid alternative you could have used.

Answer: Example: jaw box 4 cm wide, wedge 5 cm long. Ratios: 4/6 ≈ 0.67 and 5/6 ≈ 0.83. A valid alternative is a jaw box 3.5 cm wide with a wedge 5.5 cm long, giving ratios 0.58 and 0.92, provided the masses still connect at the cheek line and chin.

Reason: The task allows variation if measurements are recorded and connections remain logical. The alternative changes proportions but keeps the three masses functional.

Check: Measure each drawing, compute both ratios, and verify that the box touches the sphere and the wedge reaches the chin in all three views.

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Source rubric / reflection

- [ ] Sphere, box, and wedge are all present and labeled S, B, W.
- [ ] Jaw box top edge touches the sphere at the cheek line.
- [ ] Wedge runs from brow to chin and aligns with the box front.
- [ ] Sphere diameter stays constant across front, three-quarter, and profile views.
- [ ] Measurements and ratios are recorded and checked.
- [ ] Convention is consistent: light mass lines, dark final outlines, baseline-to-midline reference for labels.
- [ ] Valid alternatives are accepted if mass relationships remain logical and measurements are explained.

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