Drawing Arms: Joint Landmarks and Muscle Masses

Original tasks 1, 2 / complete keys

Task 1

A straight arm has upper arm length 8 cm. Using the convention, forearm is 0.8 units and widths are 0.5, 0.35, and 0.2 units. Calculate forearm length and the three widths, then describe where each width mark goes.

Answer: Forearm = 0.8 times 8 = 6.4 cm. Shoulder width = 0.5 times 8 = 4.0 cm. Elbow width = 0.35 times 8 = 2.8 cm. Wrist width = 0.2 times 8 = 1.6 cm. Place width marks perpendicular to the axis at shoulder, elbow, and wrist respectively.

Reason: The unit is the upper arm length, so every other measure is a multiplier of 8 cm. Multiplying gives each length and width directly, and the marks belong at the three landmarks.

Check: Verify each product: 0.8 times 8 is 6.4; 0.5 times 8 is 4.0; 0.35 times 8 is 2.8; 0.2 times 8 is 1.6. Confirm the widths decrease from shoulder to wrist.

Task 2

A bent arm has upper arm 7 cm and forearm 0.9 units. The elbow angle is 90 degrees. Describe how to place the forearm line and how the muscle masses differ from a straight-arm drawing.

Answer: Forearm length = 0.9 times 7 = 6.3 cm. Mark shoulder and elbow, then rotate the forearm line 90 degrees around the elbow landmark and measure 6.3 cm to the wrist. Inside the bend, draw the upper-arm and forearm masses shorter and fuller; outside the bend, draw them longer and flatter. Keep all masses inside the tapered envelope.

Reason: Bending changes only the angle between segments, not their lengths. The 90-degree rotation sets the forearm direction, and compression and stretch adjust the masses to match the new geometry.

Check: Confirm forearm is 6.3 cm and the angle between upper arm and forearm is 90 degrees. Check that inside masses are visibly shorter and fuller than outside masses.

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Original tasks 3, 4 / complete keys

Task 3

An arm drawing shows shoulder width 3.5 cm, elbow width 3.0 cm, and wrist width 2.5 cm with upper arm 7 cm. Identify the proportion error and state corrected widths using the convention.

Answer: The widths barely taper, so the envelope is too uniform. Corrected widths: shoulder 0.5 times 7 = 3.5 cm; elbow 0.35 times 7 = 2.45 cm; wrist 0.2 times 7 = 1.4 cm. The shoulder width is already correct; elbow and wrist need reduction.

Reason: The convention expects a clear taper from about half the unit at the shoulder to about one-fifth at the wrist. The given elbow and wrist widths are too close to the shoulder width.

Check: Recalculate each width from the 7 cm unit and compare: 3.5, 2.45, and 1.4 cm. Confirm each successive width is smaller than the previous one.

Task 4

A bent arm has upper arm 5 cm and forearm 0.8 units, with the forearm rotated 45 degrees from the upper arm. Calculate forearm length, state the angle, and list two checks that confirm the muscle masses are correctly adapted.

Answer: Forearm = 0.8 times 5 = 4.0 cm. The angle between upper arm and forearm is 45 degrees. Check one: inside-bend masses are shorter and fuller than outside-bend masses. Check two: all masses remain inside the tapered envelope built from width marks at shoulder, elbow, and wrist.

Reason: The unit convention gives forearm length directly. The 45-degree rotation defines the bend, and the two checks test whether compression, stretch, and envelope containment were applied.

Check: Verify 0.8 times 5 equals 4.0 and that the stated angle is 45 degrees. Visually compare inside and outside mass lengths and confirm no mass crosses the envelope boundary.

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Source rubric / reflection

- [ ] Three joint landmarks are marked and distinguishable: shoulder, elbow pivot, wrist crease.
- [ ] Upper arm and forearm lengths follow the unit convention within a reasonable margin, or a stated alternative is applied consistently.
- [ ] Width marks taper from shoulder to elbow to wrist and form a closed envelope.
- [ ] Muscle masses are simplified closed shapes placed inside the envelope, with deltoid rounding the shoulder.
- [ ] Bent-arm studies show compression inside the bend and stretch outside.
- [ ] Valid stylistic alternatives are accepted if landmarks, proportion logic, and mass placement remain checkable.

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