Draw a Human Body: Torso and Limb Construction

Original tasks 1, 2, 3 / complete keys

Task 1

A figure is 24 cm tall. You choose a head unit of 3 cm. Mark the shoulder line at 1.5 head units below the top and the hip line at 4 head units below the top. Calculate the centimeter positions of both lines from the top, and the distance from the hip line to the floor.

Answer: Shoulder line: 1.5 × 3 = 4.5 cm below the top. Hip line: 4 × 3 = 12 cm below the top. Hip-to-floor distance: 24 − 12 = 12 cm.

Reason: Multiply the head unit by the unit count for each landmark. Subtract the hip-line position from the total height to find the remaining distance.

Check: Add the hip-line position and the hip-to-floor distance: 12 + 12 = 24 cm, which matches the total height.

Task 2

A standing figure has a shoulder width of 9 cm and a hip width of 6 cm. You want a shoulder-to-hip width ratio of about 1.5 to 1. Is the current ratio close to that target? Show the arithmetic.

Answer: The current ratio is 9 ÷ 6 = 1.5, which matches the target ratio of 1.5 to 1.

Reason: Divide the shoulder width by the hip width to get the ratio. Compare the result with the target ratio.

Check: Multiply the hip width by 1.5: 6 × 1.5 = 9 cm, which equals the shoulder width.

Task 3

A figure is 30 cm tall with a head unit of 4 cm. The hip line is placed 16 cm below the top. The knee landmark is placed halfway between the hip line and the floor. Calculate the knee landmark's distance from the top.

Answer: The hip-to-floor distance is 30 − 16 = 14 cm. Half of that is 7 cm. The knee landmark is 16 + 7 = 23 cm below the top.

Reason: Find the remaining distance from the hip line to the floor, divide it by two, and add that half-distance to the hip-line position.

Check: The knee-to-floor distance is 30 − 23 = 7 cm, which equals the hip-to-knee distance of 7 cm.

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Original tasks 4 / complete keys

Task 4

A figure is 27 cm tall with a head unit of 3 cm. The elbow landmark is placed at the waist line, 12 cm below the top. The wrist landmark is placed at the hip line, 15 cm below the top. Calculate the length of the forearm segment between the elbow and wrist landmarks.

Answer: The forearm segment length is $15 - 12 = 3$ cm.

Reason: Subtract the elbow landmark position from the wrist landmark position to find the distance between them.

Check: Add the forearm length to the elbow position: $12 + 3 = 15$ cm, which matches the wrist landmark position.

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Source rubric / reflection

- [ ] The figure has a clear vertical axis and a consistent head unit.
- [ ] The torso is built from a ribcage box and a pelvis box with a waist section.
- [ ] Joint landmarks are marked at shoulders, elbows, wrists, hips, knees, and ankles.
- [ ] Limbs are drawn as tapered cylinders connected at the joints.
- [ ] The far arm and far leg are offset slightly to show depth.
- [ ] Proportions are checked with simple arithmetic using consistent units.
- [ ] Valid alternative proportions and body types are accepted if the construction is coherent and checkable.

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