Practice Drawing Trans Structure: Proportion and Contour Guide

Original tasks 1, 2 / complete keys

Task 1

A figure is 12 cm tall on your paper. Using a hypothetical 7.5 head-unit proportion, calculate one head unit and the height of the chin landmark from the top. Then state the shoulder landmark height if it sits at 1.4 units.

Answer: One head unit is 12 divided by 7.5, which equals 1.6 cm. The chin landmark is at 1.0 unit, so 1.6 cm from the top. The shoulder landmark is at 1.4 units, so 1.4 times 1.6 equals 2.24 cm from the top.

Reason: Divide total height by the number of head units to get the unit size. Multiply the unit size by the landmark unit value to get the distance from the top. Keep units in centimeters throughout.

Check: Reverse the arithmetic: 2.24 cm divided by 1.6 cm equals 1.4 units, matching the shoulder landmark. Confirm the chin value by 1.6 cm divided by 1.6 cm equals 1.0 unit.

Task 2

On a drawn figure, shoulder width measures 4.2 cm and hip width measures 5.8 cm. The drawn head unit is 1.5 cm. Are the widths within the trans-structure guideline of one head unit difference? If not, by how much do they exceed it, and what adjustment do you make?

Answer: The difference is 5.8 minus 4.2 equals 1.6 cm. One head unit is 1.5 cm, so the difference exceeds the guideline by 0.1 cm. Adjust by narrowing the hip width by at least 0.1 cm or widening the shoulder width by at least 0.1 cm so the difference is 1.5 cm or less.

Reason: Subtract the smaller width from the larger to find the difference. Compare that difference to one head unit. If the difference is greater, the excess is the difference minus the head unit.

Check: After adjustment, subtract the widths again and confirm the result is less than or equal to 1.5 cm. Record both measurements beside the figure box.

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Original tasks 3, 4 / complete keys

Task 3

A figure uses a hypothetical landmark set: chin at 1.0, shoulder at 1.4, waist at 3.0, hip at 3.6, crotch at 4.0, knee at 5.6, ankle at 7.3. The total height is 14.6 cm. Calculate the waist height from the top and the knee height from the top. Then check whether the upper leg from crotch to knee and the lower leg from knee to ankle are equal in units.

Answer: One head unit is 14.6 divided by 7.5, which equals approximately 1.947 cm. Waist height is 3.0 times 1.947, which equals approximately 5.84 cm from the top. Knee height is 5.6 times 1.947, which equals approximately 10.90 cm from the top. Upper leg is 5.6 minus 4.0 equals 1.6 units. Lower leg is 7.3 minus 5.6 equals 1.7 units. They are not equal; the lower leg is 0.1 unit longer.

Reason: Convert unit values to centimeters by multiplying by the head unit. For leg segments, subtract landmark unit values to get segment lengths in units, then compare.

Check: Add the segment units: 1.6 plus 1.7 equals 3.3 units from crotch to ankle. Check that 7.3 minus 4.0 equals 3.3 units, confirming the segment arithmetic.

Task 4

You are drawing a trans-structure figure with a softened waist. The waist landmark is at 3.0 units and the hip landmark is at 3.6 units. Describe where the contour should begin to change direction at the waist and how far the gradual transition should span, using the head unit as your measure. Then state one checkable measurement to confirm the transition is gradual.

Answer: Begin the contour change at about 2.75 units, which is 0.25 units above the waist landmark, and end it at about 3.25 units, which is 0.25 units below the waist landmark. The transition spans about 0.5 head units. A checkable measurement is the horizontal distance between the contour at 2.75 units and the contour at 3.25 units; if the waist is softened, this distance should be small and change gradually rather than forming a sharp point.

Reason: A softened waist spreads the direction change over about half a head unit centered on the waist landmark. Using unit values above and below the waist gives a consistent span. The check compares contour positions at the start and end of the transition.

Check: Measure the vertical span between the start and end points and confirm it is approximately 0.5 times the head unit. Then measure the horizontal contour positions at both points and confirm the change is gradual, not a single sharp vertex.

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Source rubric / reflection

- [ ] Proportion grid is present with a labeled head unit and at least five horizontal landmarks.
- [ ] Shoulder width and hip width differ by no more than one head unit, measured and recorded.
- [ ] Waist transition is gradual over about half a head unit, not a sharp pinch.
- [ ] Contour uses the three-pass method with a visible distinction between proportion lines and final contour lines.
- [ ] Figure fits inside the blank figure box and all measurements use consistent units.
- [ ] Valid alternative conventions are accepted if defined before drawing and applied consistently.

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