Draw an Upside-Down Person: Inverted Proportion and Balance Checks

Original tasks 1, 2, 3 / complete keys

Task 1

A drawing zone is 12 cm tall. Using the eight-part convention, calculate the part length and the head, torso, and leg section heights. State whether the sum matches the total height.

Answer: Part length = 12 divided by 8 = 1.5 cm. Head = 2 parts = 3 cm. Torso = 3 parts = 4.5 cm. Legs = 3 parts = 4.5 cm. Sum = 3 + 4.5 + 4.5 = 12 cm, which matches.

Reason: Divide total height by eight, multiply by the part counts for each section, then add the sections to verify the total.

Check: Re-add the three section heights and compare with the measured total height; also confirm 1.5 cm times 8 equals 12 cm.

Task 2

An upside-down figure has shoulder distances of 2.8 cm left and 3.1 cm right from the center line. The chosen tolerance is 0.5 cm. Does the shoulder balance check pass, and what is the difference?

Answer: Difference = 3.1 minus 2.8 = 0.3 cm. Since 0.3 cm is less than or equal to 0.5 cm, the check passes.

Reason: Subtract the smaller distance from the larger, then compare the result with the stated tolerance.

Check: Re-measure both distances and recompute the difference; confirm the tolerance value is written on the page.

Task 3

A student labels the top edge 'head zone' and the bottom edge 'feet zone', then draws the head near the top. Using the lesson convention, identify the orientation error and state the correction.

Answer: The labels are reversed relative to the convention. The head should be near the bottom head zone and the feet near the top feet zone. Correction: swap the labels so the top is 'feet zone' and the bottom is 'head zone', then move the head to the bottom guide.

Reason: The convention defines inversion by head at the bottom and feet at the top; reversed labels contradict the figure placement.

Check: Compare the head position with the labeled head zone and confirm the orientation arrows point toward the correct zones.

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Original tasks 4 / complete keys

Task 4

A figure is drawn in a 9 cm tall zone. The student marks head as 2 parts, torso as 3 parts, and legs as 2 parts. Find the part length, the section heights, and the missing part count needed to reach eight parts.

Answer: Part length = 9 divided by 8 = 1.125 cm. Head = 2 parts = 2.25 cm. Torso = 3 parts = 3.375 cm. Legs = 2 parts = 2.25 cm. Current parts = 2 + 3 + 2 = 7, so one part is missing. Adding one part (1.125 cm) gives eight parts and a total of 9 cm.

Reason: Compute the part length, multiply by each part count, sum the parts, and compare with eight.

Check: Add the section heights plus the missing part and confirm the result equals 9 cm; also confirm the part counts sum to eight.

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Source rubric / reflection

- [ ] Orientation: head near the labeled head zone at the bottom and feet near the labeled feet zone at the top.
- [ ] Proportion: eight-part divisions marked and the head, torso, and leg part counts sum to eight.
- [ ] Arithmetic: recorded part length times eight equals the measured total height.
- [ ] Balance: paired left-right distances at shoulders, hips, and feet are within the stated tolerance.
- [ ] Consistency: the chosen convention is stated on the page and applied throughout.
- [ ] Line clarity: guides and final lines are distinguishable by a consistent scheme.

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