Draw a Portrait Upside Down: A Brain-Teaser Exercise

Original tasks 1, 2 / complete keys

Task 1

Prepare two identical blank frames 10 cm by 10 cm. Place an upside-down portrait reference beside them. Draw only the outer boundary of the head and shoulders using straight segments, then flip both upright and compare overall height and width. Record one measured difference in centimeters.

Answer: A completed drawing with an outer boundary and a recorded difference, such as overall height differing by 0.4 cm, compared against a stated tolerance.

Reason: Starting with the outer boundary forces attention on large shapes before interior details, which is the core of the inverted-copy method.

Check: Flip reference and drawing upright together; measure overall height and width with a ruler; confirm the recorded difference is in centimeters and compared to a stated tolerance.

Task 2

Using an upside-down reference, draw one small region without naming it. Before drawing, write the start point, direction, and length of the first line in centimeters as a hypothetical example. After drawing, measure the same line and record the difference.

Answer: A drawing of one region with a pre-written line description and a measured difference, such as a planned 2.5 cm line drawn as 2.7 cm, within a stated tolerance.

Reason: Describing a line by start point, direction, and length replaces feature naming with observable properties.

Check: Compare the pre-written description to the measured line; confirm units are consistent and the difference is within the stated tolerance.

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Original tasks 3, 4 / complete keys

Task 3

Measure the x-height of lowercase letters in a printed label on your reference. Record the value in centimeters as a hypothetical example. Then draw a short curve from the upside-down reference twice: once as one smooth stroke and once as three short segments. Flip both upright and decide whether both versions satisfy a stated position tolerance.

Answer: A recorded x-height value and two curve versions, with a judgment that both satisfy the tolerance if their positions match within the stated limit.

Reason: Letter styles vary, so measuring actual letters and allowing alternative stroke sequences keeps the check fair and repeatable.

Check: Re-measure the x-height on the actual label; compare both curve versions to the reference position using the stated tolerance.

Task 4

Complete a full upside-down copy on a blank frame. After flipping upright, list three measured differences in centimeters and one qualitative observation about stroke sequence. State whether each difference is within your pre-set tolerance.

Answer: A full copy with three measured differences, one qualitative note, and a clear within-or-outside judgment for each difference against the stated tolerance.

Reason: A full copy followed by structured comparison trains sustained observation and makes the check repeatable.

Check: Flip reference and drawing upright together; re-measure the three intervals; confirm units, tolerance, and judgments are recorded consistently.

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Source rubric / reflection

- [ ] Reference and drawing remain upside down until the flip-to-check stage.
- [ ] Outer boundary is placed before interior regions.
- [ ] At least three intervals are measured and recorded in consistent units.
- [ ] Differences are compared against a pre-set tolerance labeled as a hypothetical example.
- [ ] Valid alternative stroke sequences are accepted if final shape and position match within tolerance.
- [ ] X-height convention is stated and measured on actual letters, not assumed.

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