Mustache Drawing: Curl, Taper, and Bilateral Symmetry

Original tasks 1, 2, 3 / complete keys

Task 1

A practice area is 10 cm wide with the axis at the center. The left tip is 3 cm from the axis. Where is the right tip, and what is the distance between the tips?

Answer: The right tip is 3 cm from the axis on the opposite side. The distance between tips is 6 cm.

Reason: Bilateral symmetry requires equal distances from the axis. Left tip at 3 cm means right tip at 3 cm on the other side. Total tip-to-tip distance is 3 cm + 3 cm = 6 cm.

Check: Measure from the axis to each tip with a ruler; both should read 3 cm, and the full span should read 6 cm.

Task 2

At three checkpoints from center to tip, the vertical gaps on the left half are 2.0 cm, 1.4 cm, and 0.8 cm. Is the taper acceptable under the steady-decrease rule? Explain.

Answer: Yes. The gaps decrease by 0.6 cm each step: 2.0 to 1.4 and 1.4 to 0.8. The taper is steady.

Reason: Subtract consecutive gaps: 2.0 - 1.4 = 0.6 and 1.4 - 0.8 = 0.6. Equal decreases indicate a smooth taper.

Check: Re-measure each gap at the marked checkpoints and confirm the differences are equal or close enough for your stated tolerance.

Task 3

A drawing has a left curl that arcs upward and inward with a 0.5 cm radius. The right curl arcs downward and outward with a 0.5 cm radius. Does this satisfy mirror symmetry? What fix is needed?

Answer: No. The curls are not mirror images. Fix by making the right curl arc upward and inward with the same 0.5 cm radius, or restate the convention and redraw both curls to match it.

Reason: Mirror symmetry requires the same size and mirrored direction about the axis. Upward-inward on the left must correspond to upward-inward on the right under this convention.

Check: Fold or mirror along the axis; the curl arcs should overlap. Measure both radii to confirm they match.

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Original tasks 4 / complete keys

Task 4

On a 14 cm wide practice area, the axis is at 7 cm. A center band is marked 1.2 cm above the midline and 1.8 cm below it. Is the band symmetric about the midline? If not, what equal values would make it symmetric while keeping the same total height?

Answer: No, it is not symmetric: 1.2 cm above and 1.8 cm below are unequal. The total height is 3.0 cm, so equal values would be 1.5 cm above and 1.5 cm below the midline.

Reason: Symmetry about the midline requires equal distances above and below. Add the two distances: 1.2 + 1.8 = 3.0 cm. Half of 3.0 cm is 1.5 cm, so use 1.5 cm above and 1.5 cm below.

Check: Measure from the midline to the top and bottom of the band; both should read 1.5 cm, and the total should read 3.0 cm.

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Source rubric / reflection

- [ ] A vertical symmetry axis is present and used.
- [ ] Paired checkpoints are equal in distance from the axis and at matching heights.
- [ ] The taper shows a steady decrease in vertical gap from center to tip.
- [ ] Curls follow the stated convention and are mirror images about the axis.
- [ ] The outline is smooth and free of face features or hair rendering.
- [ ] Valid alternatives are accepted when the stated convention and symmetry check are satisfied.

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