Contour Drawing of a Light Bulb: Outline-Only Study

Original tasks 1, 2, 3 / complete keys

Task 1

A hypothetical bulb is 9 cm tall and 5 cm wide. Calculate the height-to-width ratio and state what a correct contour drawing should show.

Answer: Ratio is 9 divided by 5, which equals 1.8. The drawing should be noticeably taller than wide, with a ratio close to 1.8.

Reason: Divide height by width: 9 / 5 = 1.8. A correct drawing preserves this proportion.

Check: Measure the drawing's height and width, divide height by width, and confirm the result is within about 0.2 of 1.8.

Task 2

A bulb is 10 cm tall. The dome-neck junction is 3 cm from the top. What fraction of the total height is the dome section, and how would you check it on a drawing?

Answer: The dome fraction is 3 divided by 10, which equals 0.3 or 30 percent. On the drawing, measure from the top to the junction and divide by the drawing's total height; the result should be close to 0.3.

Reason: The dome section is the distance from the top to the junction. Dividing by total height gives the fraction.

Check: Use a ruler on the drawing: junction distance divided by total height should be within about 0.1 of 0.3.

Task 3

Describe how to set up a blind-contour box for this task using a sheet of paper and a pencil, and state one rule for the drawing.

Answer: Draw a rectangle on the paper large enough for the bulb outline, label it blind contour, and turn the paper away or cover it while drawing. One rule: keep the pencil moving continuously along each edge without looking at the paper until the edge is finished.

Reason: The box defines the drawing area; covering it enforces blind contour. Continuous movement trains eye-hand tracking.

Check: After drawing, confirm the outline stays mostly inside the box and that each edge was drawn in one continuous pass.

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Original tasks 4 / complete keys

Task 4

A drawing of a 10 cm tall bulb measures 10 cm tall and 8 cm wide. The actual bulb is 6 cm wide. Is the drawing acceptable by the ratio check, and what correction is needed?

Answer: Actual ratio is 10 divided by 6, about 1.67. Drawing ratio is 10 divided by 8, which equals 1.25. The difference is about 0.42, which exceeds 0.2, so the drawing is too wide. Narrow the outline so the width is closer to 6 cm.

Reason: Compare both ratios: 1.67 versus 1.25. A difference above 0.2 signals a proportion error.

Check: Recalculate height divided by width after adjustment and confirm the difference from 1.67 is 0.2 or less.

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Source rubric / reflection

- [ ] Three edges are present: dome, neck, base.
- [ ] Two junction points are clearly marked where edges meet.
- [ ] Line is continuous per edge with no shading or reflection marks.
- [ ] Height-to-width ratio is within about 0.2 of the measured bulb ratio.
- [ ] Dome height fraction is within about 10 percent of the measured fraction.
- [ ] Valid alternatives: line weight, slight curve variation, and base shape may differ if edge placement and proportions pass the checks.

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