Mortar and Pestle Drawing: Bowl Form, Rim Ellipse, and Interior Shadow

Original tasks 1, 2, 3 / complete keys

Task 1

A bowl has a rim ellipse 12 cm wide and 5 cm tall. The bowl height is 8 cm. State the ratio of rim width to rim height and the ratio of bowl height to rim height.

Answer: Rim width to rim height is 12:5. Bowl height to rim height is 8:5.

Reason: Divide the width by the height for the first ratio, and the bowl height by the rim height for the second. Both use the same units, so the ratios are checkable.

Check: Confirm 12 divided by 5 equals 2.4, and 8 divided by 5 equals 1.6. Compare with your written ratios.

Task 2

A pestle is 9 cm long. The bowl height is 6 cm. If the pestle is placed with 2 cm inside the bowl, how much of the pestle rises above the rim?

Answer: 7 cm rises above the rim.

Reason: Subtract the inside length from the total pestle length: 9 cm minus 2 cm equals 7 cm.

Check: Add the inside length and the above-rim length: 2 cm plus 7 cm equals 9 cm, matching the total.

Task 3

You shade the interior in three passes. Pass one covers the whole cavity, pass two covers the back half, and pass three covers the back quarter. Describe which area receives the darkest value and why.

Answer: The back quarter receives the darkest value because it receives all three shading passes, while the front receives only one.

Reason: Layered passes build value. The area with the most overlapping passes becomes darkest, which supports the interior cavity shadow.

Check: Count the passes per area: front 1, back half 2, back quarter 3. The highest count should correspond to the darkest area.

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Original tasks 4 / complete keys

Task 4

A rim highlight is planned as a band 0.5 cm wide along a front rim curve of 10 cm. If you divide the band into five equal segments, what is each segment length?

Answer: Each segment is 2 cm long.

Reason: Divide the total curve length by the number of segments: 10 cm divided by 5 equals 2 cm.

Check: Multiply 2 cm by 5 to get 10 cm, confirming the total curve length.

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Source rubric / reflection

- [ ] Rim ellipse reads as a flattened oval in perspective, not a circle.
- [ ] Bowl sides are symmetrical and taper to a rounded base.
- [ ] Pestle proportion is plausible and the overlap at the rim is correct.
- [ ] Interior cavity shadow is darkest at the back and under the pestle.
- [ ] Rim highlight follows the front edge without a hard outline.
- [ ] Line quality is consistent: light construction lines, darker final contours.
- [ ] Valid alternatives are accepted if form and shading logic remain coherent.

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