Germ Shapes Drawing: Stylized Cell Structure Practice

Original tasks 1, 2, 3, 4 / complete keys

Task 1

With a hypothetical scale of 1 x-height = 4 mm, plan a sphere 2.5 x-heights across. State the planned diameter in millimeters.

Answer: Planned diameter is 2.5 × 4 = 10 mm.

Reason: Multiply the planned x-height units by the chosen millimeter value per x-height.

Check: Measure the drawn circle in millimeters and divide by 4 to confirm it is about 2.5 x-heights.

Task 2

A drawn rod measures 18 mm long with a hypothetical scale of 1 x-height = 6 mm. How many x-heights is it?

Answer: 18 ÷ 6 = 3 x-heights.

Reason: Divide the measured length by the millimeter value per x-height.

Check: Multiply 3 by 6 to return to 18 mm.

Task 3

Plan a spiral with two full turns, each turn 1.5 x-heights wide, using 1 x-height = 5 mm. State the planned width of one turn in millimeters.

Answer: Planned turn width is 1.5 × 5 = 7.5 mm.

Reason: Multiply the turn width in x-heights by the millimeter value per x-height.

Check: Measure one turn across and divide by 5 to confirm about 1.5 x-heights.

Task 4

A sphere is planned at 2 x-heights across with 1 x-height = 5 mm, but the drawn circle measures 12 mm. Find the difference in millimeters and in x-heights.

Answer: Planned is 10 mm; difference is 12 − 10 = 2 mm, which is 2 ÷ 5 = 0.4 x-height.

Reason: Subtract planned from measured, then divide the difference by the millimeter value per x-height.

Check: Add 2 mm to 10 mm to return to 12 mm, and multiply 0.4 by 5 to return to 2 mm.

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Source rubric / reflection

- [ ] Three shapes are present: rod, sphere, spiral.
- [ ] Each shape has three callouts: boundary, interior, feature.
- [ ] Leader lines are straight, short, and do not cross other shapes.
- [ ] The x-height and hypothetical scale are recorded at the top.
- [ ] Measurements are checked with simple arithmetic and differences are noted.
- [ ] Valid stylistic alternatives are kept when callouts and proportions are checked.

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