Decorative Motif Drawing: Repeating Patterns and Border Variations

Original tasks 1, 2, 3 / complete keys

Task 1

A 12 cm by 8 cm panel uses a 2 cm grid. How many motif cells fit across the width and height, and what is the total motif count?

Answer: Six across and four down, for 24 motif cells total.

Reason: Divide width by motif width: 12 divided by 2 equals 6. Divide height by motif height: 8 divided by 2 equals 4. Multiply for total: 6 times 4 equals 24.

Check: Re-measure the panel and grid, then recount rows and columns; confirm 6 times 4 equals 24.

Task 2

A border strip is planned at 1.5 cm. On a 10 cm side, where are the two parallel border lines measured from the edge?

Answer: At 1.5 cm and at 3.0 cm from the edge.

Reason: The first line marks the outer border edge at 1.5 cm. The second line marks the inner border edge one strip width further, so 1.5 plus 1.5 equals 3.0 cm.

Check: Measure both distances with the same ruler setting and confirm the gap between lines equals 1.5 cm.

Task 3

A dotted border uses dots at half-motif spacing. If the motif width is 2 cm and the side is 12 cm, how many dot intervals and how many dots along that side if dots are placed at each interval boundary including both ends?

Answer: Twelve half-motif intervals and thirteen dots including both ends, at 0, 1, 2, ..., 12 cm.

Reason: Half-motif spacing is 1 cm. Twelve divided by 1 equals 12 half-intervals. Placing dots at each 1 cm boundary from 0 to 12 cm gives 13 positions, counting both ends.

Check: Mark the chosen boundaries on a ruler and count; confirm the count matches the stated convention.

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Original tasks 4 / complete keys

Task 4

A scalloped border uses half-circles with diameter equal to motif width. For a 2 cm motif on an 8 cm side, how many full scallops fit, and what is the radius?

Answer: Four full scallops, each with radius 1 cm.

Reason: Eight divided by 2 equals 4 scallops. Radius is half the diameter: 2 divided by 2 equals 1 cm.

Check: Measure one scallop diameter and radius, then count scallops along the side; confirm 4 scallops and 1 cm radius.

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Source rubric / reflection

- [ ] Motif repeats with matching edge-crossing points within the stated tolerance.
- [ ] Motif count per side matches panel width divided by motif width.
- [ ] Border width is consistent on all four sides within the stated tolerance.
- [ ] Dotted or scalloped features follow half-motif or motif-width spacing.
- [ ] One corner rule is applied consistently.
- [ ] Line weights distinguish outline from internal marks.
- [ ] Valid style alternatives are accepted if repetition and border rules hold.

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