Chalk Pastel Snake Scales: A Repeatable Pattern Study

Original tasks 1, 2, 3 / complete keys

Task 1

A hypothetical practice panel is 9 cm wide and 9 cm tall. You want a 3 by 3 grid. What is the width and height of each cell in centimeters?

Answer: Each cell is 3 cm wide and 3 cm tall.

Reason: Divide the panel width by the number of columns: 9 cm divided by 3 equals 3 cm. Divide the panel height by the number of rows: 9 cm divided by 3 equals 3 cm.

Check: Multiply cell width by columns (3 cm times 3 equals 9 cm) and cell height by rows (3 cm times 3 equals 9 cm) to confirm the panel size.

Task 2

In a hypothetical offset grid, row 1 has scales centered in cells. Row 2 is offset by half a cell. If each cell is 4 cm wide, how far is the center of a row 2 scale from the left edge of the panel, assuming the first row 2 scale is offset from the first cell?

Answer: The center is 2 cm from the left edge.

Reason: Half of a 4 cm cell is 2 cm. An offset row shifts the scale center by half a cell width, so the first offset scale center sits 2 cm from the left edge.

Check: Measure half the cell width (4 cm divided by 2 equals 2 cm) and compare with the described position.

Task 3

You draw 4 rows of 6 scales. Each scale uses one short stroke of mid-tone and one short stroke of dark edge. How many short strokes in total are used for mid-tone and dark edge combined?

Answer: 48 short strokes.

Reason: There are 4 rows times 6 scales equals 24 scales. Each scale uses 2 strokes (one mid-tone, one dark edge), so 24 times 2 equals 48 strokes.

Check: Count scales (4 times 6 equals 24) and multiply by strokes per scale (2) to get 48.

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Original tasks 4 / complete keys

Task 4

A scale outline is a rounded diamond about 2.5 cm wide inside a 3 cm cell. What is the total gap on both sides of the scale if the scale is centered?

Answer: The total gap is 0.5 cm, or 0.25 cm on each side.

Reason: Subtract the scale width from the cell width: 3 cm minus 2.5 cm equals 0.5 cm. If centered, half of that gap is on each side: 0.5 cm divided by 2 equals 0.25 cm.

Check: Add the scale width and both side gaps: 2.5 cm plus 0.25 cm plus 0.25 cm equals 3 cm, matching the cell width.

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Source rubric / reflection

- [ ] Pattern repeats across the panel with a stated convention (straight or offset).
- [ ] Each scale is a rounded diamond or teardrop shape with a visible gap from neighbors.
- [ ] Mid-tone is blended lightly; dark edge remains visible on one side.
- [ ] Scale sizes are consistent within rows, with acceptable natural variation.
- [ ] No crowded areas where scales merge into a solid mass.
- [ ] Work is free of excessive smudging and muddy color mixing.

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