Choosing Graph-Paper Grid Size for Calligraphy Stroke Practice

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

Task 1

A pen stroke is 1.5 mm wide and the intended x-height is 9 mm. Calculate how many squares the x-height spans on a 5 mm grid and on a 1 cm grid.

Answer: 5 mm grid: 9 divided by 5 equals 1.8 squares. 1 cm grid: 9 divided by 10 equals 0.9 squares.

Reason: Divide the x-height by the grid size. Keep units in millimetres: 1 cm equals 10 mm.

Check: Multiply each result by the grid size to recover 9 mm: 1.8 times 5 equals 9, and 0.9 times 10 equals 9.

Task 2

A 1/4-inch grid has squares of 6.35 mm. A letter has an x-height of 19.05 mm. How many squares does it span, and what is that in inches?

Answer: 19.05 divided by 6.35 equals 3 squares. That is 3 times 1/4 inch, or 3/4 inch.

Reason: Convert the grid to millimetres, divide, then express the result in inches by counting quarter-inch squares.

Check: 3 times 6.35 equals 19.05 mm, and 3 times 1/4 inch equals 3/4 inch.

Task 3

A pen stroke is 2.5 mm wide. On a 5 mm grid, what fraction of a square does the stroke cover? On a 1 cm grid? Show both as simple fractions.

Answer: 5 mm grid: 2.5/5 equals 1/2 of a square. 1 cm grid: 2.5/10 equals 1/4 of a square.

Reason: Divide stroke width by grid size and simplify the fraction.

Check: 1/2 times 5 equals 2.5 mm, and 1/4 times 10 equals 2.5 mm.

Task 4

You want an x-height of 15 mm. Compare a 5 mm grid and a 1 cm grid by square span. Which grid gives a whole-number span, and what is it?

Answer: 5 mm grid: 15 divided by 5 equals 3 squares, a whole number. 1 cm grid: 15 divided by 10 equals 1.5 squares, a half-square span.

Reason: A whole-number span is easier to count. Divide the x-height by each grid size and compare.

Check: 3 times 5 equals 15 mm, and 1.5 times 10 equals 15 mm.

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Source rubric / reflection

- [ ] Stroke width is measured and recorded in millimetres.
- [ ] X-height is measured baseline to midline and recorded as a working value.
- [ ] Grid choice is justified by a square-count calculation.
- [ ] Metric and inch values are converted consistently.
- [ ] Valid alternative grid choices are accepted when the reasoning and measurements support them.

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