Tianzige Square Grid Paper: Margin and Row Controls for Chinese Writing

Original tasks 1, 2, 3 / complete keys

Task 1

A planned sheet has a printable width of 170 mm and a left margin column of 20 mm. Each tianzige cell is 25 mm wide. How many full cells fit across one row, and how much width remains?

Answer: 6 full cells fit, with 0 mm remaining.

Reason: Subtract the margin: 170 minus 20 equals 150 mm. Divide by 25 mm: 150 divided by 25 equals 6. There is no remainder.

Check: Multiply 6 cells by 25 mm to get 150 mm, then add the 20 mm margin to get 170 mm, matching the printable width.

Task 2

A practice row uses 18 mm cells with a 6 mm gap. A model row uses the same cell size but a 12 mm gap after it. What vertical space does one practice row occupy, and what space does the model row occupy?

Answer: One practice row occupies 24 mm; the model row occupies 30 mm.

Reason: Practice row: 18 plus 6 equals 24 mm. Model row: 18 plus 12 equals 30 mm. Units are millimetres throughout.

Check: Subtract the gap from each total: 24 minus 6 equals 18 mm, and 30 minus 12 equals 18 mm, confirming the cell height.

Task 3

A printable height is 240 mm. Each practice row is 24 mm high. A model row is 30 mm high and is placed first. How many practice rows fit after the model row?

Answer: 8 practice rows fit.

Reason: Subtract the model row: 240 minus 30 equals 210 mm. Divide by 24 mm: 210 divided by 24 equals 8 with 18 mm remaining, so 8 full practice rows fit.

Check: Add the model row and practice rows: 30 plus 8 times 24 equals 30 plus 192 equals 222 mm, which is less than 240 mm; adding one more practice row would exceed the height.

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Original tasks 4 / complete keys

Task 4

A sheet has 7 cells across and 9 practice rows. Each cell is 22 mm square. The left margin is 18 mm. Without measuring the printer, calculate the total width used by the margin plus the 7 cells, and the total height used by the 9 rows if each row has a 4 mm gap.

Answer: Total width is 172 mm; total height is 234 mm.

Reason: Width: 18 plus 7 times 22 equals 18 plus 154 equals 172 mm. Height: each row is 22 plus 4 equals 26 mm; 9 times 26 equals 234 mm.

Check: Reverse the arithmetic: 172 minus 18 equals 154 mm, and 154 divided by 7 equals 22 mm per cell; 234 divided by 9 equals 26 mm per row, and 26 minus 4 equals 22 mm cell height.

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Source rubric / reflection

- [ ] Character is centered within the square cell, allowing slight left or right variation if overall balance is maintained.
- [ ] Character size is consistent with the model row and fits within the cell boundaries.
- [ ] Guide lines are respected; x-height is judged from baseline to midline using the stated convention.
- [ ] Left margin labels remain outside the square cells and do not overlap the grid.
- [ ] Row spacing is consistent with the chosen control values and simple arithmetic.

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