College-Ruled vs Graph-Ruled Paper: A Printable Comparison Sheet

Rubric for evaluating the comparison sheet

Rubric items from the source.

1. Both rulings are shown side by side at the same physical scale.
2. College line spacing is labeled in millimetres as a measured example.
3. Graph square size is labeled in millimetres as a measured example.
4. Each sample has a short note on when to use it.
5. Handwriting convention for x-height is stated explicitly and applied consistently.
6. Measurements are labeled as examples, not universal standards.

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Complete worked example / separate answer key

A college-ruled sample has lines 7.1 mm apart. A graph-ruled sample has 5 mm squares. A writer sets x-height to two small squares on the graph paper. How many millimetres is that x-height, and how does it compare with the college line spacing?

Answer: Two squares at 5 mm each gives an x-height of 10 mm. The college line spacing is 7.1 mm, so the chosen graph x-height is 2.9 mm larger than the college line gap. This means the graph convention uses more vertical space per line of x-height than the college ruling provides between lines.

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Original tasks 1, 2, 3 / complete keys

Task 1

A college-ruled sample has lines 7.1 mm apart. A graph-ruled sample has 5 mm squares. A writer sets x-height to one small square. What is the x-height in millimetres, and how many millimetres shorter is it than the college line gap?

Answer: The x-height is 5 mm. The college line gap is 7.1 mm, so the graph x-height is 2.1 mm shorter.

Reason: One square at 5 mm per side gives 5 mm. Subtract 5 mm from 7.1 mm to get 2.1 mm.

Check: Multiply the number of squares by the square size, then subtract from the line spacing; confirm the result is positive.

Task 2

On graph paper with 5 mm squares, a writer uses three squares for x-height. A line of ten lowercase letters is written. What is the total x-height in millimetres for one letter, and what vertical distance does the x-height band occupy?

Answer: Each letter has an x-height of 15 mm, and the x-height band occupies 15 mm of vertical space.

Reason: Three squares at 5 mm each gives 15 mm. The band height equals the x-height because all letters share the same top and bottom grid lines.

Check: Multiply squares by square size and confirm the band height matches the chosen convention.

Task 3

A comparison sheet shows a college-ruled sample with 7.1 mm line spacing and a graph-ruled sample with 5 mm squares. A reader counts 20 lines on the college sample. What vertical distance do those 20 line gaps cover in millimetres?

Answer: The 20 line gaps cover 142 mm.

Reason: Multiply 20 by 7.1 mm to get 142 mm.

Check: Multiply the number of gaps by the line spacing and confirm the units are millimetres.

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Original tasks 4 / complete keys

Task 4

A writer wants the same x-height on both papers. The college line spacing is 7.1 mm and the graph square is 5 mm. Can x-height be set to exactly 7.1 mm using whole squares? Explain using arithmetic.

Answer: No. Whole squares give multiples of 5 mm: 5 mm, 10 mm, 15 mm, and so on. None equals 7.1 mm, so an exact match is not possible with whole squares.

Reason: The graph convention uses whole squares, so x-height must be a multiple of 5 mm. Since 7.1 is not a multiple of 5, no whole-square setting matches it exactly.

Check: Divide 7.1 by 5 and confirm the result is not a whole number.

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Task 1 / Exercise 1 answer

x-height 5 mm; 2.1 mm shorter than 7.1 mm college gap.

The x-height is 5 mm. The college line gap is 7.1 mm, so the graph x-height is 2.1 mm shorter.

Reasoning: One square at 5 mm per side gives 5 mm. Subtract 5 mm from 7.1 mm to get 2.1 mm.

Check: Multiply the number of squares by the square size, then subtract from the line spacing; confirm the result is positive.

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Task 2 / Exercise 2 answer

Three squares at 5 mm each gives 15 mm x-height; band occupies 15 mm.

Each letter has an x-height of 15 mm, and the x-height band occupies 15 mm of vertical space.

Reasoning: Three squares at 5 mm each gives 15 mm. The band height equals the x-height because all letters share the same top and bottom grid lines.

Check: Multiply squares by square size and confirm the band height matches the chosen convention.

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Task 3 / Exercise 3 answer

20 line gaps at 7.1 mm each cover 142 mm.

The 20 line gaps cover 142 mm.

Reasoning: Multiply 20 by 7.1 mm to get 142 mm.

Check: Multiply the number of gaps by the line spacing and confirm the units are millimetres.

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Task 4 / Exercise 4 answer

No whole-square setting equals 7.1 mm; whole squares give multiples of 5 mm.

No. Whole squares give multiples of 5 mm: 5 mm, 10 mm, 15 mm, and so on. None equals 7.1 mm, so an exact match is not possible with whole squares.

Reasoning: The graph convention uses whole squares, so x-height must be a multiple of 5 mm. Since 7.1 is not a multiple of 5, no whole-square setting matches it exactly.

Check: Divide 7.1 by 5 and confirm the result is not a whole number.

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Worked example / Worked example answer

Worked example: two squares at 5 mm each gives x-height 10 mm; college line spacing 7.1 mm; difference 2.9 mm larger.

Two squares at 5 mm each gives an x-height of 10 mm. The college line spacing is 7.1 mm, so the chosen graph x-height is 2.9 mm larger than the college line gap. This means the graph convention uses more vertical space per line of x-height than the college ruling provides between lines.

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Source rubric / reflection

- [ ] Both rulings are shown side by side at the same physical scale.
- [ ] College line spacing is labeled in millimetres as a measured example.
- [ ] Graph square size is labeled in millimetres as a measured example.
- [ ] Each sample has a short note on when to use it.
- [ ] Handwriting convention for x-height is stated explicitly and applied consistently.
- [ ] Measurements are labeled as examples, not universal standards.
- [ ] Valid alternative conventions are accepted if applied consistently.

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