Draw a Rich House Facade: Columns, Gates, and Large Windows

Original tasks 1, 2, 3 / complete keys

Task 1

A facade is 16 cm wide with four columns creating three equal bays. Calculate each bay width. If the gate is 4 cm wide and centered, how much space remains on each side of the gate within the central bay?

Answer: Each bay is 16 ÷ 3 ≈ 5.33 cm. The central bay is about 5.33 cm and the gate is 4 cm, so about 1.33 cm remains total, or about 0.67 cm on each side.

Reason: Divide total width by number of bays. Subtract gate width from central bay width and halve the remainder for equal side spaces.

Check: Add the two side spaces to the gate width and confirm the sum equals the central bay width: 0.67 + 4 + 0.67 ≈ 5.33 cm.

Task 2

A facade has six columns creating five equal bays. The facade width is 20 cm. Calculate bay width. If each window is 3 cm wide and centered in its bay, what is the side margin in each bay?

Answer: Each bay is 20 ÷ 5 = 4 cm. Side margin is (4 − 3) ÷ 2 = 0.5 cm on each side.

Reason: Equal bays come from dividing total width by bay count. Centered window margins are half the difference between bay width and window width.

Check: Confirm 0.5 + 3 + 0.5 = 4 cm for each bay.

Task 3

A drawing uses a baseline as zero. A window bottom is at 3 cm above baseline and the window top is at 7 cm above baseline. A second window in another bay has its bottom at 3 cm and top at 6.5 cm. Describe the alignment problem and give one fix using a common guide.

Answer: The window tops do not align because 7 cm and 6.5 cm differ by 0.5 cm. Fix by drawing a single horizontal guide at 7 cm for all window tops and adjusting the second window to match.

Reason: Heights measured from the same baseline are directly comparable. A common guide enforces equal top alignment.

Check: Measure both window tops from the baseline and confirm they reach the same guide height.

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Original tasks 4 / complete keys

Task 4

A facade is 14 cm wide with four columns creating three bays. The gate is centered and 3.5 cm wide. Calculate bay width and the side space beside the gate in the central bay. Then state one check that confirms the gate is centered.

Answer: Each bay is $14 \div 3 \approx 4.67$ cm. Side space is $(4.67 - 3.5) \div 2 \approx 0.58$ cm on each side. Check that the left and right distances from the gate edges to the central bay boundaries are equal.

Reason: Bay width comes from equal division. Centering requires equal remaining spaces on both sides of the gate.

Check: Measure both side spaces; they should match within your drawing accuracy, and their sum plus gate width should equal the central bay width.

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Source rubric / reflection

- [ ] Baseline is clearly marked and used as the zero reference for vertical measurements.
- [ ] Central axis is marked and the gate is centered on it.
- [ ] Bays are equal in width and columns are evenly spaced.
- [ ] Gate width is narrower than the nearest column gap.
- [ ] Large windows are centered in bays with equal side margins.
- [ ] Window tops and bottoms align across the facade.
- [ ] Column widths and heights are consistent.
- [ ] Construction guides are light or erased, and the facade reads clearly.
- [ ] Valid alternative styles are accepted if spacing and alignment checks pass.

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