Draw a Farmhouse Facade: Porch, Roof, and Siding Construction

Original tasks 1, 2, 3 / complete keys

Task 1

A wall is 90 mm wide. The roof uses a rise of 20 mm and a run of 45 mm per side. Where is the ridge, and what total roof span does this produce?

Answer: The ridge is 20 mm above the midpoint of the top wall line. The total roof span is 45 mm plus 45 mm = 90 mm, matching the wall width.

Reason: Each side run is 45 mm, so two sides cover 90 mm. The ridge sits at the wall midpoint and rises 20 mm above it.

Check: Measure the wall width and confirm it equals the sum of both runs. Measure the vertical distance from the top wall line to the ridge and confirm it is 20 mm.

Task 2

A porch is 150 mm wide and uses six posts. What is the gap between adjacent posts?

Answer: Six posts create five gaps. Gap = 150 mm divided by 5 = 30 mm.

Reason: The number of gaps is one less than the number of posts. Dividing total porch width by gap count gives equal spacing.

Check: Multiply 30 mm by 5 gaps to get 150 mm, matching the porch width. Measure each gap with a ruler.

Task 3

A wall is 80 mm tall. You want siding intervals of 10 mm. How many intervals fit, and how many siding lines do you draw if you include the top and bottom wall edges? What is the spacing if you instead draw 8 lines including both edges?

Answer: Intervals = 80 mm divided by 10 mm = 8 intervals. Including both wall edges, you draw 9 lines. If you draw 8 lines including both edges, there are 7 intervals, so spacing = 80 mm divided by 7 ≈ 11.4 mm, not 10 mm.

Reason: Spacing equals wall height divided by the number of intervals. The number of drawn lines is one more than the number of intervals when both wall edges are included.

Check: Count the intervals between adjacent lines and multiply by the spacing to confirm it equals 80 mm. For 8 lines including both edges, measure one gap and confirm it is about 11.4 mm.

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Original tasks 4 / complete keys

Task 4

A door is 24 mm wide and centered on a 120 mm wall. What is the margin from each wall edge to the door edge?

Answer: Remaining width = 120 mm minus 24 mm = 96 mm. Each margin = 96 mm divided by 2 = 48 mm.

Reason: Centering means equal margins on both sides. Subtract door width from wall width, then divide by two.

Check: Measure each margin and confirm both are 48 mm. Add 48 mm, 24 mm, and 48 mm to confirm the total is 120 mm.

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Source rubric / reflection

- [ ] Baseline is horizontal and the wall rectangle has four straight edges meeting at right angles.
- [ ] Roof ridge is centered above the wall midpoint and both slopes have equal rise and run.
- [ ] Door is centered and windows are symmetric with equal side margins.
- [ ] Porch posts are evenly spaced using a computed gap, not by eye.
- [ ] Siding lines are horizontal, evenly spaced, and stop at door and window edges; the line count is stated as intervals plus one when both wall edges are included.
- [ ] All stated measurements use one consistent unit and are checkable with a ruler.

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