Draw a Cabin: Roof Pitch, Wall Logs, and Openings

Original tasks 1, 2 / complete keys

Task 1

Draw a front view of a cabin 16 units wide and 10 units tall. Use a roof rise of 4 units above the wall top with a run of 8 units from ridge to wall edge. Use 5 wall logs. Place a door 2 units wide and 6 units tall, starting 1 unit from the left wall edge. Place a window 3 units wide and 2 units tall, centered on the right half of the wall.

Answer: Baseline 16 units. Midpoint 8 units. Ridge 4 units above wall top. Roof slopes: run 8, rise 4 on each side. Wall height 10 divided by 5 logs gives 2-unit log height. Door: left edge 1, width 2, height 6. Window: right half 8 to 16, center 12, width 3 gives edges 10.5 and 13.5, height 2. Log lines stop at opening edges.

Reason: Divide wall height by log count for log height. Measure door from left edge. Center window in right half by finding midpoint of that half. Check roof rise and run on both slopes.

Check: Verify door right edge 1+2=3 is inside wall. Verify window edges 10.5 and 13.5 are inside right half. Verify 5 logs times 2 units equals 10 units wall height. Verify roof rise 4 for run 8 on both sides.

Task 2

Draw a front view of a cabin 24 units wide and 12 units tall. Use a roof rise of 6 units above the wall top with a run of 12 units from ridge to wall edge. Use 4 wall logs. Place a door 4 units wide and 8 units tall, centered on the wall. Place a window 5 units wide and 3 units tall, starting 2 units from the right wall edge.

Answer: Baseline 24 units. Midpoint 12 units. Ridge 6 units above wall top. Roof slopes: run 12, rise 6 each side. Wall height 12 divided by 4 logs gives 3-unit log height. Door: center 12, width 4 gives edges 10 and 14, height 8. Window: right edge at 24-2=22, width 5 gives left edge 17, height 3. Log lines stop at opening edges.

Reason: Center door by placing its midpoint at wall midpoint. Measure window from right edge inward. Divide wall height by log count.

Check: Verify door edges 10 and 14 are inside wall. Verify window edges 17 and 22 are inside wall. Verify 4 logs times 3 units equals 12 units. Verify roof rise 6 for run 12 on both sides.

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Original tasks 3, 4 / complete keys

Task 3

Draw a front view of a cabin 18 units wide and 9 units tall. Use a roof rise of 3 units above the wall top with a run of 9 units from ridge to wall edge. Use 3 wall logs. Place a door 3 units wide and 6 units tall, starting 3 units from the left wall edge. Place a window 3 units wide and 3 units tall, centered on the right half of the wall.

Answer: Baseline 18 units. Midpoint 9 units. Ridge 3 units above wall top. Roof slopes: run 9, rise 3 each side. Wall height 9 divided by 3 logs gives 3-unit log height. Door: left edge 3, width 3, height 6. Window: right half 9 to 18, center 13.5, width 3 gives edges 12 and 15, height 3. Log lines stop at opening edges.

Reason: Use midpoint for ridge and door centering. For window, find midpoint of right half. Divide wall height by log count.

Check: Verify door right edge 3+3=6 is inside wall. Verify window edges 12 and 15 are inside right half. Verify 3 logs times 3 units equals 9 units. Verify roof rise 3 for run 9 on both sides.

Task 4

Draw a front view of a cabin 20 units wide and 10 units tall. Use a roof rise of 5 units above the wall top with a run of 10 units from ridge to wall edge. Use 5 wall logs. Place a door 3 units wide and 7 units tall, starting 2 units from the left wall edge. Place a window 4 units wide and 2 units tall, starting 2 units from the right wall edge.

Answer: Baseline 20 units. Midpoint 10 units. Ridge 5 units above wall top. Roof slopes: run 10, rise 5 each side. Wall height 10 divided by 5 logs gives 2-unit log height. Door: left edge 2, width 3, height 7. Window: right edge at 20-2=18, width 4 gives left edge 14, height 2. Log lines stop at opening edges.

Reason: Measure door from left edge and window from right edge. Divide wall height by log count. Check roof rise and run on both slopes.

Check: Verify door right edge 2+3=5 is inside wall. Verify window edges 14 and 18 are inside wall. Verify 5 logs times 2 units equals 10 units. Verify roof rise 5 for run 10 on both sides.

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Source rubric / reflection

- [ ] Roof slopes show equal rise for equal run, or each slope is checked separately if asymmetric.
- [ ] Wall logs are stacked at consistent height from baseline to wall top.
- [ ] Log lines stop at door and window opening edges.
- [ ] Door and window boxes are inside the wall boundary and do not overlap.
- [ ] Dimensions are labeled using the baseline-to-midline x-height convention; letter styles may vary.
- [ ] Front and side views use consistent wall height and log spacing.

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