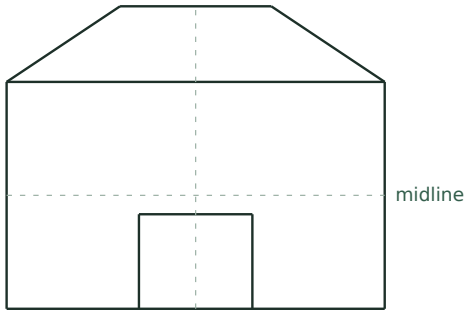
Line Drawing of a Barn: Roof, Walls, and Door Construction

EXERCISE 1 / ANSWERS

Draw a line barn with a trapezoid roof. Use a baseline 10 cm, wall height 6 cm, ridge line 4 cm long centered 2 cm above the wall top, and a door 3 cm wide by 2.5 cm tall centered on the baseline. Describe the final line set.

Completed trapezoid barn



Baseline: 10 cm

Midline: 3 cm / door top: 2.5 cm

Door width: 3 cm; equal side gaps: 3.5 cm

Final line set: baseline 10 cm; two vertical wall lines 6 cm tall at the ends; horizontal wall top line; horizontal ridge line 4 cm long centered 2 cm above the wall top; two straight roof lines connecting the ridge ends to the wall top corners; door rectangle 3 cm wide by 2.5 cm tall centered on the baseline, bottom on the baseline, top at 2.5 cm, which is below the 3 cm midline. No shading or scenery.

Why: A trapezoid roof uses a horizontal ridge and two straight slanted lines from the ridge ends to the wall top corners. The door width of 3 cm is less than half the 10 cm wall width. The midline is half the wall height: 6 cm divided by 2 equals 3 cm. A door 2.5 cm tall has its top at 2.5 cm, which is below the midline.

Check: Measure the baseline (10 cm), wall height (6 cm), ridge length (4 cm) and ridge height above wall top (2 cm), and door dimensions (3 cm by 2.5 cm). Calculate the midline as 6 divided by 2 equals 3 cm and confirm the door top at 2.5 cm is below it. Confirm both roof lines are straight and meet the ridge ends and wall corners.

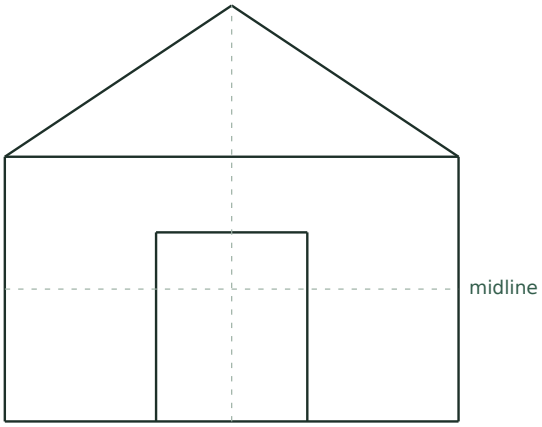
Diagram scale 1:2. Labels state the original task dimensions. Dashed guides are construction aids.

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EXERCISE 2 / ANSWERS

A barn drawing has a baseline 12 cm, walls 7 cm tall, a triangle roof peak 4 cm above wall top, and a door 4 cm wide by 5 cm tall. Identify one proportion problem and state a fix.

Given: door too tall

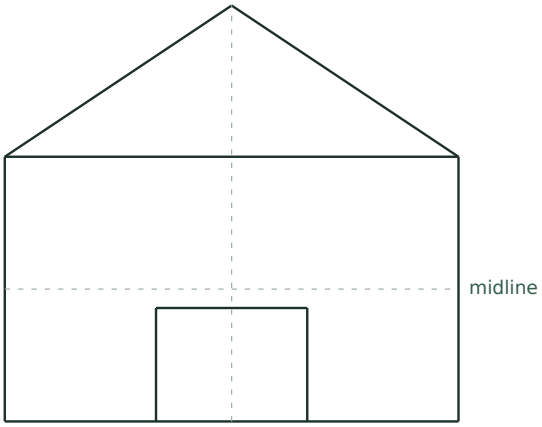


Baseline: 12 cm

Midline: 3.5 cm / door top: 5 cm

Door width: 4 cm; equal side gaps: 4 cm

Corrected: door 3 cm



Baseline: 12 cm

Midline: 3.5 cm / door top: 3 cm

Door width: 4 cm; equal side gaps: 4 cm

The door top is at 5 cm, which is above the midline at 3.5 cm. Fix: reduce door height to 3 cm so its top is below the midline.

Why: Midline is half the wall height: 7 cm divided by 2 equals 3.5 cm. A 5 cm door top exceeds this. Reducing to 3 cm keeps the top below midline.

Check: Calculate midline as wall height divided by 2. Compare door top height to midline.

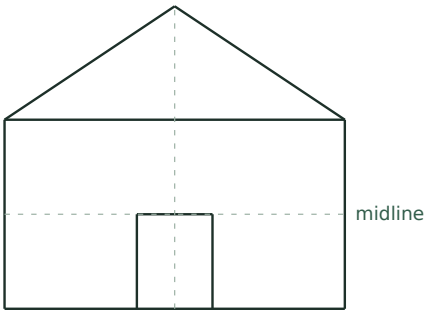
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Line Drawing of a Barn: Roof, Walls, and Door Construction

EXERCISE 3 / ANSWERS

Draw a line barn with baseline 9 cm, walls 5 cm, triangle roof peak 3 cm above wall top, and door 2 cm wide by 2.5 cm tall. Check whether the door top is below the midline and whether the door is centered.

Given: door equals midline

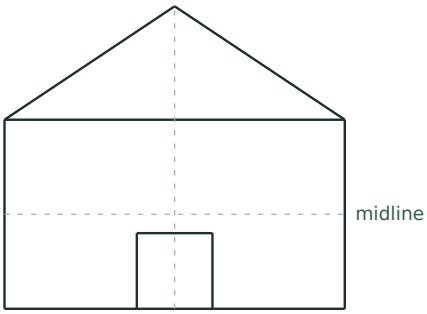


Baseline: 9 cm

Midline: 2.5 cm / door top: 2.5 cm

Door width: 2 cm; equal side gaps: 3.5 cm

Corrected: door 2 cm



Baseline: 9 cm

Midline: 2.5 cm / door top: 2 cm

Door width: 2 cm; equal side gaps: 3.5 cm

Midline is 2.5 cm. Door top is 2.5 cm, which is equal to the midline, not below. Fix: reduce door height to 2 cm. The door is centered if its sides are 3.5 cm from each baseline end.

Why: Midline equals half wall height: 5 divided by 2 equals 2.5 cm. The door top must be strictly below midline, so 2 cm is safe. Centering means equal distances from baseline ends.

Check: Measure door top against midline; measure distances from door sides to baseline ends.

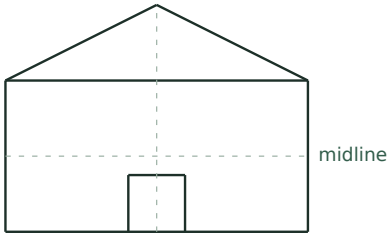
Diagram scale 1:2. Labels state the original task dimensions. Dashed guides are construction aids.

Line Drawing of a Barn: Roof, Walls, and Door Construction

EXERCISE 4 / ANSWERS

Create a line barn with a triangle roof and a door. Use baseline 8 cm, walls 4 cm, peak 2 cm above wall top, and door 1.5 cm wide by 1.5 cm tall. List the final lines and one valid alternative roof style.

Triangle roof

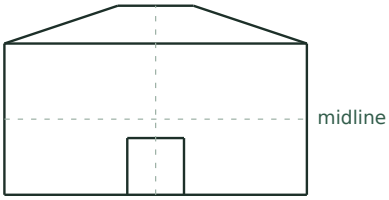


Baseline: 8 cm

Midline: 2 cm / door top: 1.5 cm

Door width: 1.5 cm; equal side gaps: 3.25 cm

Valid alternative roof



Baseline: 8 cm

Midline: 2 cm / door top: 1.5 cm

Door width: 1.5 cm; equal side gaps: 3.25 cm

Final lines: baseline 8 cm; two vertical walls 4 cm; wall top line; two roof lines to peak 2 cm above center; door rectangle 1.5 cm by 1.5 cm centered with bottom on baseline. Valid alternative: trapezoid roof with a 2 cm ridge line 1 cm above wall top.

Why: Midline is 2 cm; door top at 1.5 cm is below midline. A trapezoid roof is a valid alternative because it still uses straight lines and connects to wall corners.

Check: Verify door top below midline, roof lines straight, and door centered. For the alternative, check ridge is horizontal and centered.

Diagram scale 1:2. Labels state the original task dimensions. Dashed guides are construction aids.