Orthographic Projection of a Mouse: Front, Top, and Side Views

Original tasks 1, 2, 3 / complete keys

Task 1

A front view shows a head width of 6 cm and a body width of 4 cm. The body midline height is 3 cm. What should the head width and body width be in the top view, and what should the body height be in the side view?

Answer: Top-view head width: 6 cm. Top-view body width: 4 cm. Side-view body height: 3 cm.

Reason: The top view shares widths with the front view, and the side view shares heights with the front view. Matching these values ensures consistent scale across all three views.

Check: Draw vertical guide lines from the front view to the top view and confirm the widths match. Draw horizontal guide lines from the front view to the side view and confirm the height matches.

Task 2

A student draws a top view with the snout pointing down and the tail pointing up. The front view is above the top view. Is this correct? Explain.

Answer: No. The snout should point toward the front view, which is above the top view, so the snout should point up and the tail should point down.

Reason: In orthographic projection, the top view is aligned so that the front of the object faces the front view. Since the front view is above, the snout must point up.

Check: Check that the snout in the top view is on the side nearest the front view. If the front view is above, the snout points up.

Task 3

A side view is placed to the right of the front view. The student draws the head at the left of the side view and the tail at the right. Does the side view show the mouse facing toward or away from the front view? Explain using the placement of the views.

Answer: The side view shows the mouse facing toward the front view. The left edge of the side view is nearest the front view, and the head is drawn on that left side, so the mouse faces the front view.

Reason: The side view is placed to the right of the front view, so its left side is nearest the front view. A head drawn on the left therefore points toward the front view, meaning the mouse faces it.

Check: Identify which edge of the side view is nearest the front view (the left edge when the side view is to the right). Confirm the head is on that nearest edge. If it is, the mouse faces the front view.

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Original tasks 4 / complete keys

Task 4

A front view has a head width of 5 cm and a body width of 3 cm. The top view has a head width of 5 cm and a body width of 4 cm. The side view has a body height of 2 cm, matching the front view. Identify the error and state the correction.

Answer: The top-view body width should be 3 cm, not 4 cm, to match the front view. The head width (5 cm) and the side-view body height (2 cm) are correct.

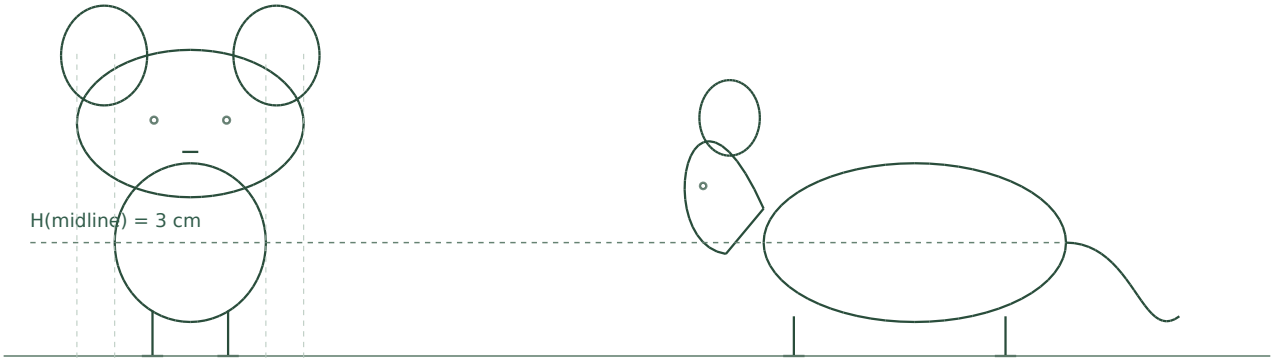
Reason: The top view must share widths with the front view. The body width of 4 cm in the top view does not match the 3 cm in the front view, so it must be corrected to 3 cm. The head width already matches, and the side-view height already matches the front view.

Check: Use vertical guide lines from the front view to the top view and measure the body width in both; they should both read 3 cm. Use horizontal guide lines from the front view to the side view and confirm the body height reads 2 cm in both.

Orthographic Projection of a Mouse: Front, Top, and Side Views

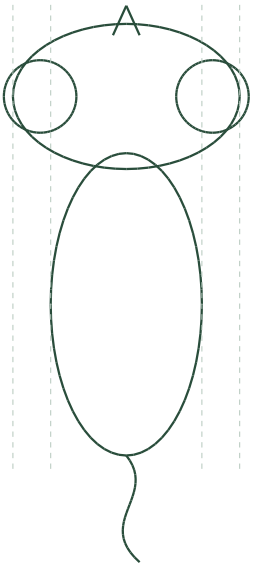
Task 1 / answers

Mouse orthographic classroom views / labelled cm print 1:2 / H = BODY MIDLINE HEIGHT



FRONT

SIDE / faces left



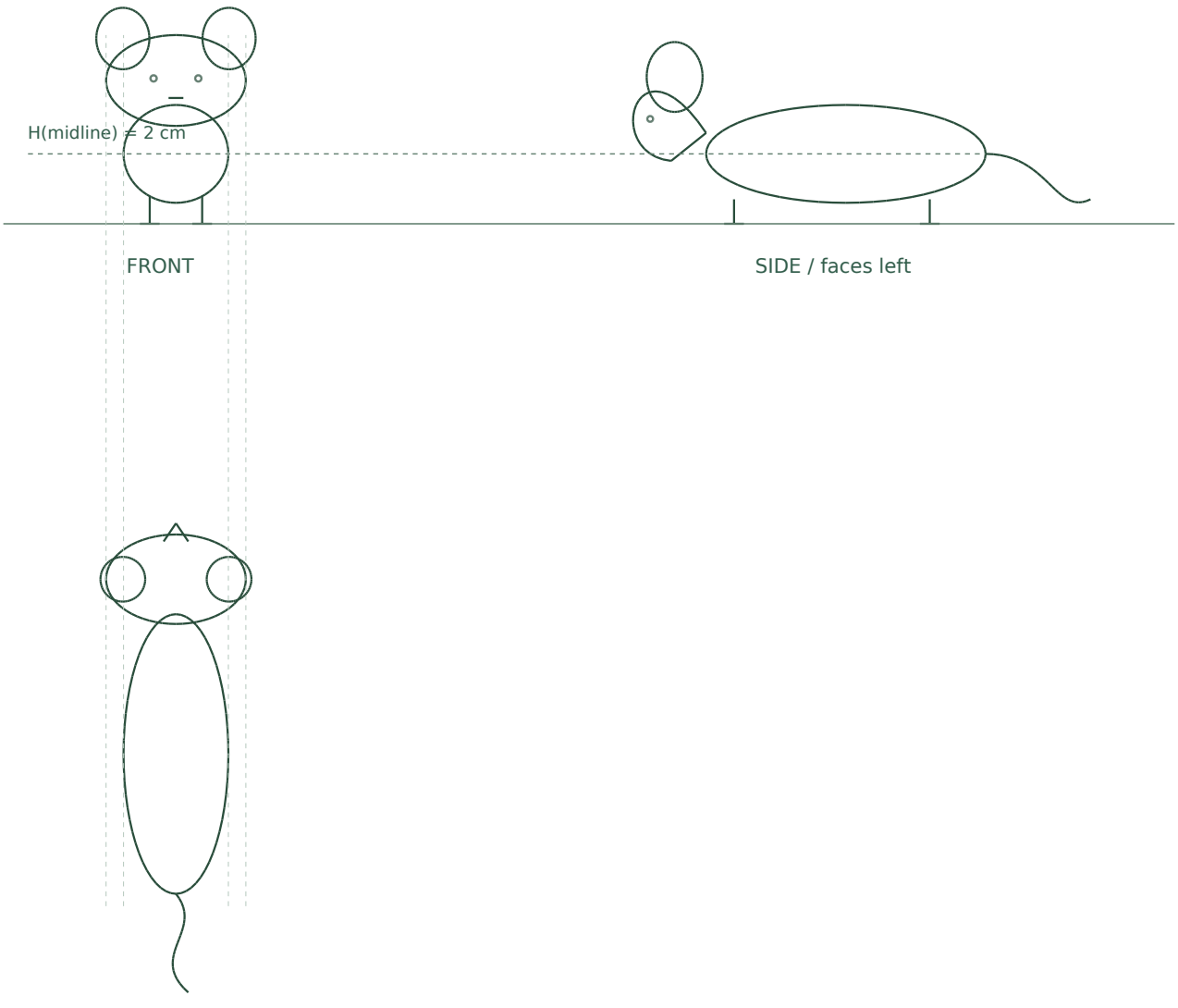
TOP / snout up, tail down

Head width 6 cm and body width 4 cm agree front/top. H = 3 cm is explicitly the body MIDLINE datum, not overall height. Top/side body length 8 cm is a declared chosen example.

Orthographic Projection of a Mouse: Front, Top, and Side Views

Task 2 / answers

Mouse orthographic classroom views / labelled cm print 1:2 / H = BODY MIDLINE HEIGHT

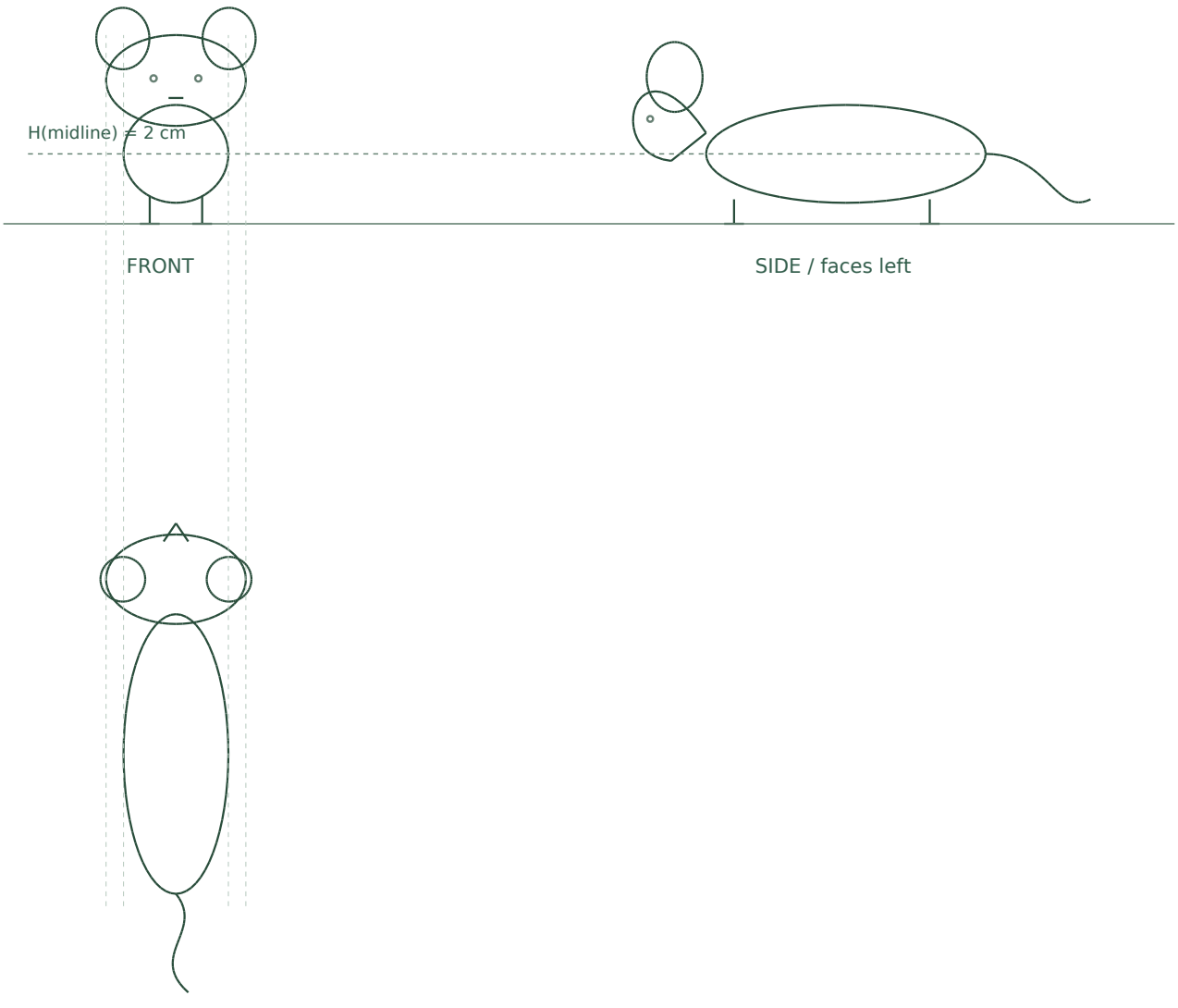


Head width 4 cm and body width 3 cm agree front/top. H = 2 cm is explicitly the body MIDLINE datum, not overall height. Top/side body length 8 cm is a declared chosen example. Corrected top orientation: snout up, tail down.

Orthographic Projection of a Mouse: Front, Top, and Side Views

Task 3 / answers

Mouse orthographic classroom views / labelled cm print 1:2 / H = BODY MIDLINE HEIGHT

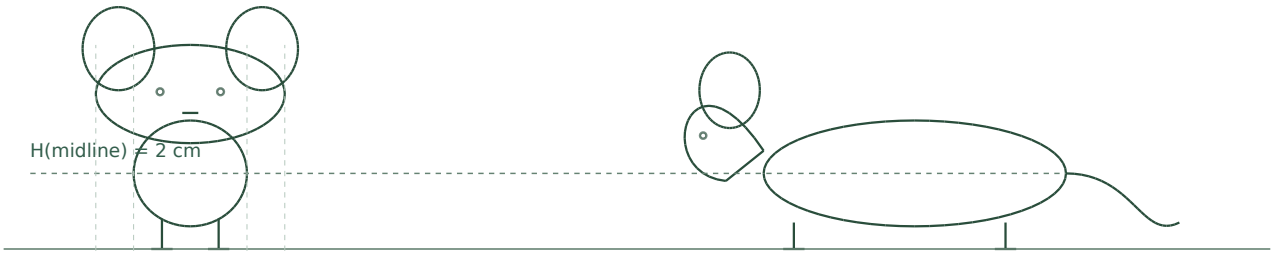


Head width 4 cm and body width 3 cm agree front/top. H = 2 cm is explicitly the body MIDLINE datum, not overall height. Top/side body length 8 cm is a declared chosen example.

Orthographic Projection of a Mouse: Front, Top, and Side Views

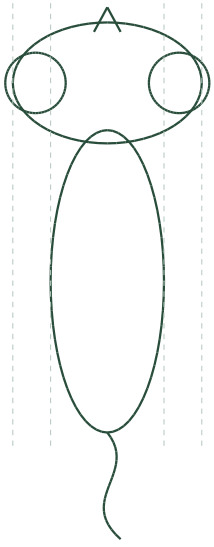
Task 4 / answers

Mouse orthographic classroom views / labelled cm print 1:2 / H = BODY MIDLINE HEIGHT



FRONT

SIDE / faces left



TOP / snout up, tail down

Head width 5 cm and body width 3 cm agree front/top. H = 2 cm is explicitly the body MIDLINE datum, not overall height. Top/side body length 8 cm is a declared chosen example. Corrected top body width is 3 cm, not the given wrong 4 cm.

Orthographic Projection of a Mouse: Front, Top, and Side Views

Source rubric / reflection

- [ ] All three views are labeled and placed on the shared axes.
- [ ] Front and top views share the same vertical midline.
- [ ] Front and side views share the same baseline.
- [ ] Head width matches between front and top views.
- [ ] Body width matches between front and top views.
- [ ] Body midline height matches between front and side views.
- [ ] Tail appears only in top and side views.
- [ ] Measurements are recorded with consistent units (for example, all in centimeters).
- [ ] Drawing is clear and guide lines are light or erased.

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