Dragon Orthographic Drawing: Three-View Projection Lesson

Original task 1 / complete key

Task 1

A front view frame is 80 mm wide. The dragon head is 8 units wide and centered. The wing roots sit 5 units above baseline. State the left and right distances from midline to head edge, and describe where to project the wing-root height in the side view.

Answer: Each side is 4 units from midline. Project the 5-unit wing-root height horizontally to the side view and mark it at the same height above baseline. The 80 mm frame width is a hypothetical measured value; the left and right distances are 4 units each regardless of the millimeter scale.

Reason: An 8-unit centered head splits into 4 units left and 4 units right. Projection lines carry height from front to side view.

Check: Measure from the midline to each head edge and confirm both distances are equal in units. Confirm the side-view wing-root mark lies on the same horizontal projection line as the front-view mark, 5 units above baseline.

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Original task 2 / complete key

Task 2

A top view shows body length 14 units and wing span 12 units. The front view frame is 60 mm wide. If 1 unit equals 5 mm, what is the top view length in millimeters, and what should the top view width match?

Answer: Top view length is 70 mm. Top view width should match the front view width of 60 mm.

Reason: 14 units times 5 mm equals 70 mm. Orthographic top view width equals front view width.

Check: Multiply 14 by 5 and compare the top frame width to the measured front frame width.

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Original task 3 / complete key

Task 3

A side view shows leg height 6 units and body depth 3 units. The front view baseline-to-midline distance is 4 units. Describe how to check that the side view height matches the front view height using projection lines.

Answer: Draw horizontal projection lines from the front view's baseline, midline, and top of head across to the side view. Measure leg height and body depth in the side view and compare to the front view's recorded heights. The front view's baseline-to-midline distance of 4 units is a separate reference; the side view must match the front view's overall height and feature heights, not necessarily the midline value.

Reason: Matching heights in front and side views must lie on the same horizontal projection lines.

Check: Use a ruler to confirm each projected line meets the same feature height in both frames; record any difference in millimeters. Verify that the side view's total height equals the front view's total height.

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Original task 4 / complete key

Task 4

A student draws a top view wing span of 10 units but a front view wing-root span of 8 units. The unit value is 6 mm. What is the mismatch in millimeters, and what correction keeps the views consistent?

Answer: The numerical difference is 10 - 8 = 2 units, or 2 x 6 = 12 mm. However, wing span normally measures tip to tip, while wing-root span measures root to root: these are different features, so the 12 mm difference alone is not a demonstrated projection mismatch. Preserve the 10-unit (60 mm) tip span and the 8-unit (48 mm) root span if both are intended. Project the root locations into the other view and compare root with root; separately compare like tip locations. Correct a view only when the same feature disagrees, rather than shrinking the wings to the root span.

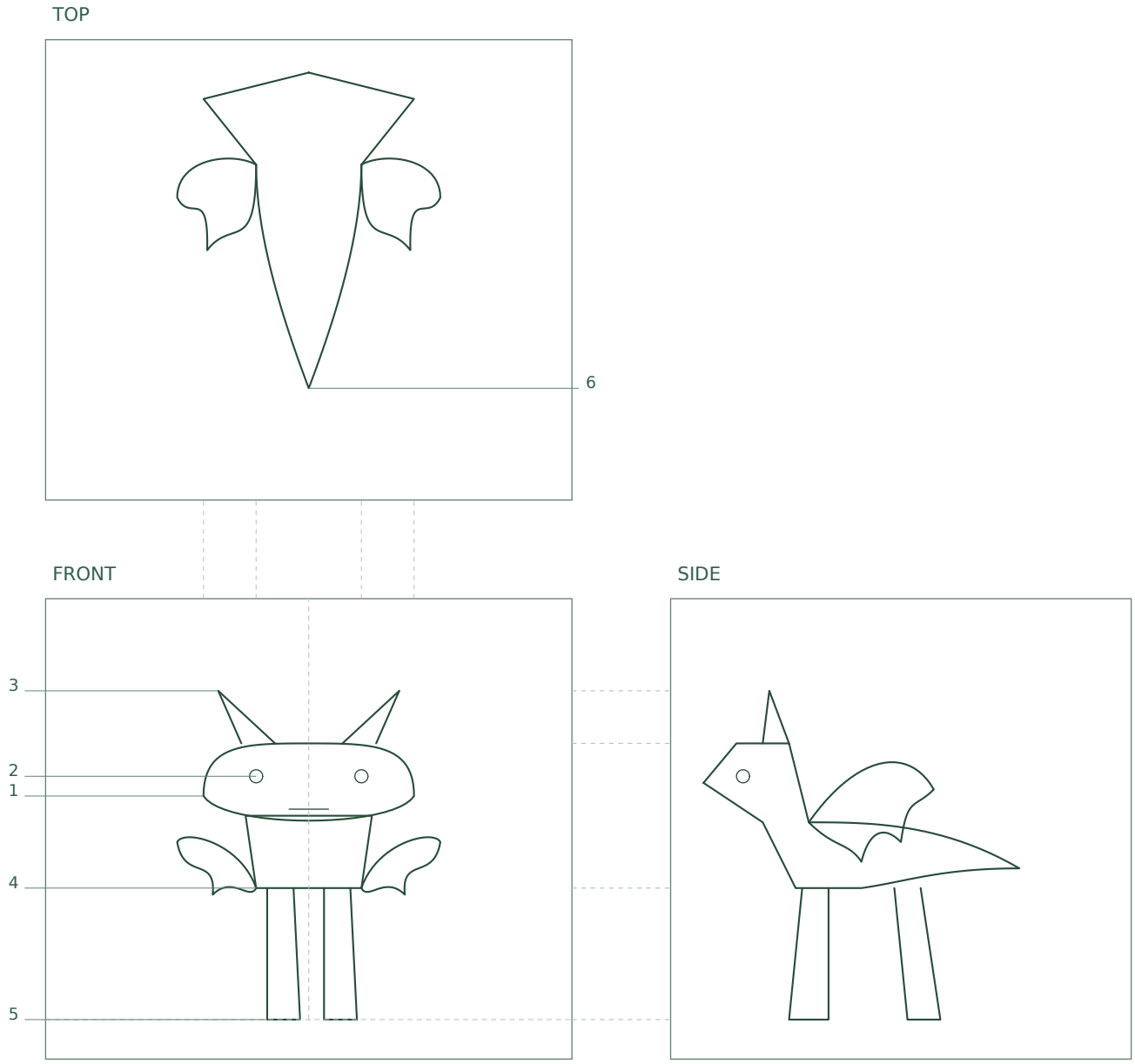
Reason: The subtraction is valid, but orthographic consistency compares the same landmark pair. A root-to-root measurement and a tip-to-tip measurement need not be equal. Missing matching-feature measurements prevent a definite claim about which view is wrong.

Check: Label both endpoint pairs explicitly. Convert 10 units to 60 mm and 8 units to 48 mm, then project each matching pair to the other view. Keep root span distinct from full wing span; request a corresponding measurement before asserting a 12 mm alignment defect.

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Task 1 / answers

Three aligned orthographic dragon views / selected unit conversions, not anatomy standards



1 snout / 2 eye / 3 horn / 4 wing root / 5 front leg / 6 tail tip

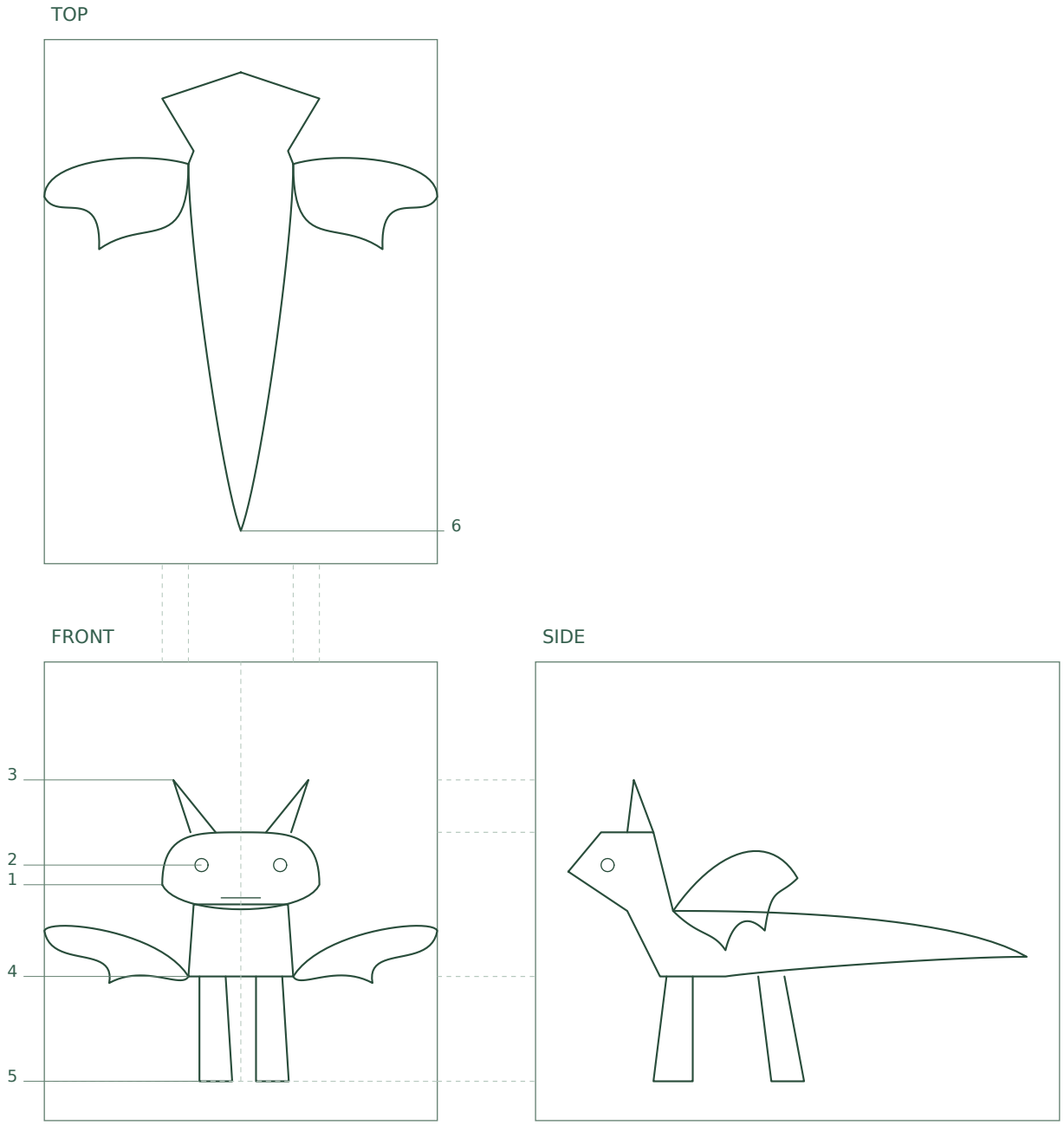
PRINT 1:1 / chosen 1 unit = 4 mm / frame width 80 mm

Task1: head8u at chosen4mm/u is32mm, so each edge is4u=16mm from the front midline. Wing-root height5u=20mm projects to the SAME horizontal height in the side panel. The frame is80mm wide; frame half-width is not head half-width.

Dragon Orthographic Drawing: Three-View Projection Lesson

Task 2 / answers

Three aligned orthographic dragon views / selected unit conversions, not anatomy standards



1 snout / 2 eye / 3 horn / 4 wing root / 5 front leg / 6 tail tip

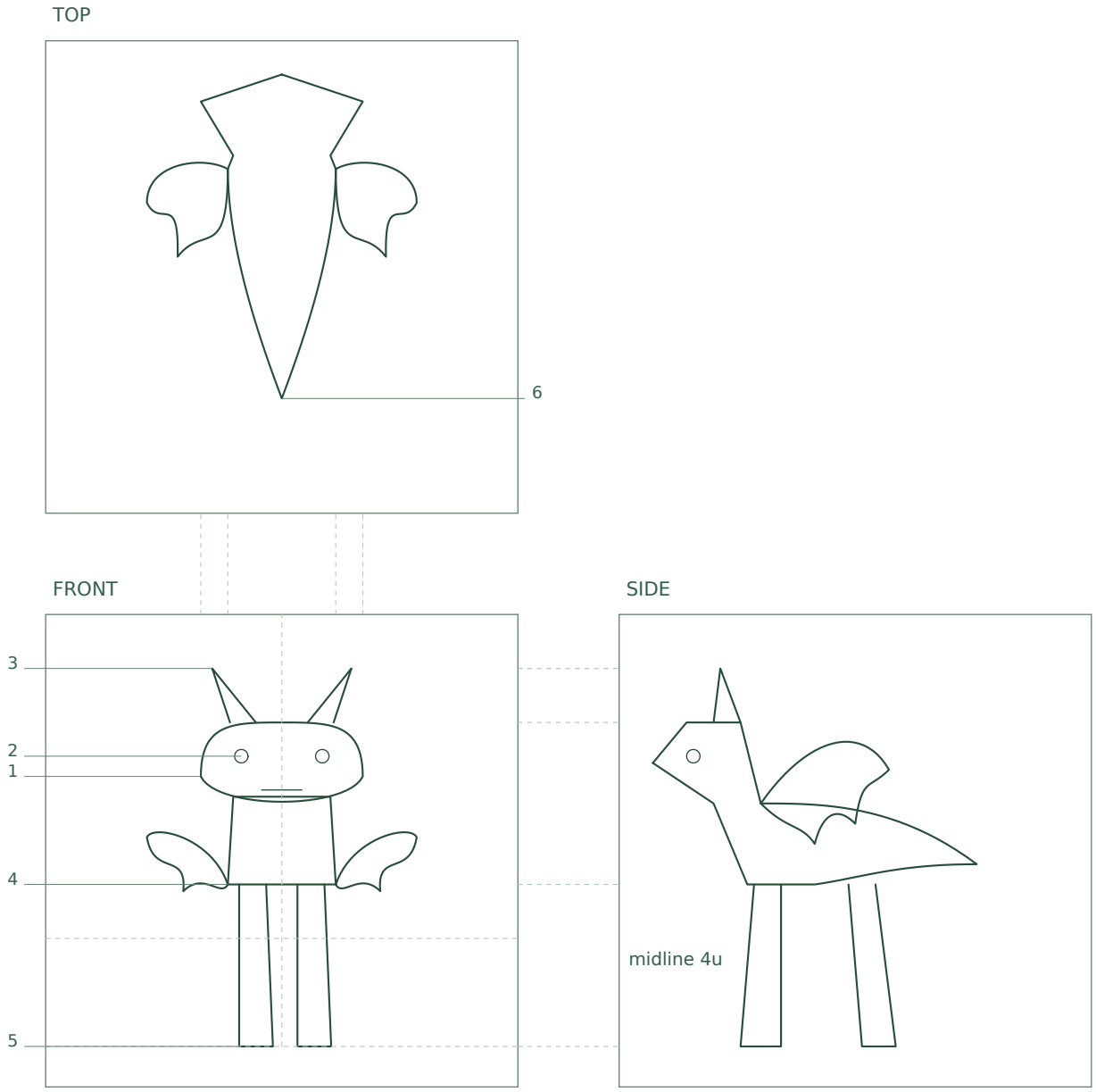
PRINT 1:1 / chosen 1 unit = 5 mm / frame width 60 mm

Task2: 14u x5mm/u=70mm snout-to-tail. Wing span12u=60mm and top/front frame WIDTH both60mm. The top frame is80mm tall to accommodate the70mm length; its height is not constrained to60mm. Wing tips meet the side frame boundaries.

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Task 3 / answers

Three aligned orthographic dragon views / selected unit conversions, not anatomy standards



1 snout / 2 eye / 3 horn / 4 wing root / 5 front leg / 6 tail tip

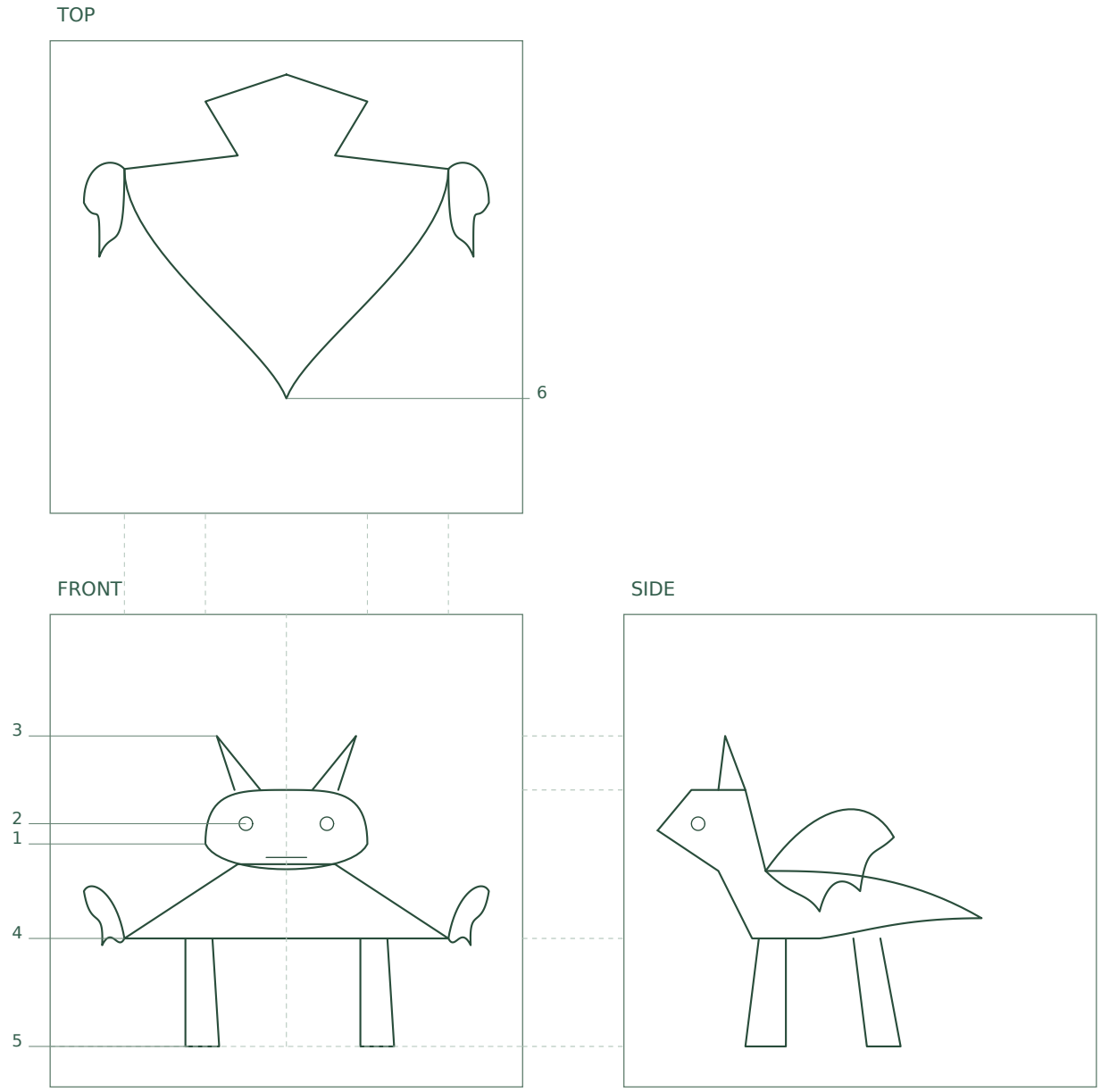
PRINT 1:1 / chosen 1 unit = 4 mm / frame width 70 mm

Task3: leg6u=24mm and body depth3u=12mm in the chosen4mm/u model. Front midline4u=16mm is a separate guide. Baseline, shoulder/body underside, head top and overall horn height project across to the matching side features, not to the midline alone.

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Task 4 / answers

Three aligned orthographic dragon views / selected unit conversions, not anatomy standards



1 snout / 2 eye / 3 horn / 4 wing root / 5 front leg / 6 tail tip

PRINT 1:1 / chosen 1 unit = 6 mm / frame width 70 mm

Task4: tip span10u=60mm and root span8u=48mm differ by12mm. They are DIFFERENT landmark pairs, not an established projection error. Both views retain matching48mm root positions; compare root with root, and tips with tips. The labelled difference alone does not justify shrinking a wing.

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Source rubric / reflection

- [ ] Three frames are labeled Front, Top, and Side and are aligned by projection lines.
- [ ] Front view shows head, eyes, horns, chest, front legs, and wing roots with left-right symmetry.
- [ ] Top view width matches front view width; body length and wing span use recorded units.
- [ ] Side view height matches front view height; leg height and body depth use recorded units.
- [ ] At least six features are labeled with a clear key and non-crossing leader lines.
- [ ] Measurements are recorded in consistent units and mismatches are noted.
- [ ] Valid stylistic alternatives are accepted if the three views remain consistent.

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