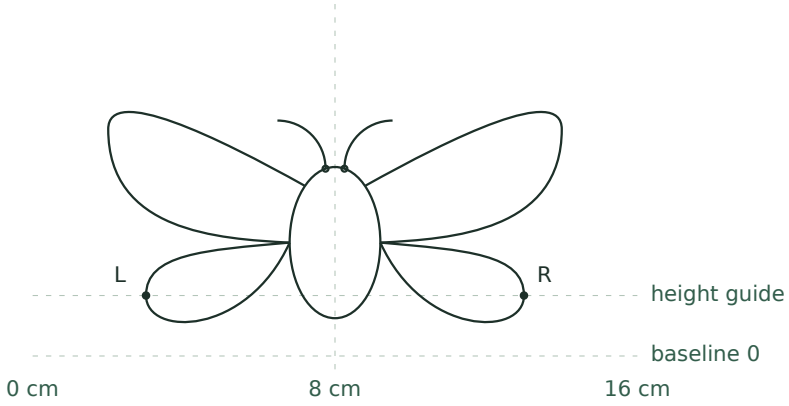
Moth Outline Drawing: Wing Symmetry and Antenna Placement

EXERCISE 1 / ANSWERS

A moth drawing has a midline at 8 cm on a 16 cm wide paper. The left hindwing widest point is 5 cm left of midline. Where is the mirrored right hindwing widest point?



The task does not give numeric vertical heights. Vertical placement in the illustration is chosen only for layout: each mirrored point must copy its left partner's height.

5 cm right of midline, at the same height above baseline.

Why: Mirroring means equal horizontal distance on the opposite side of the midline at the same height.

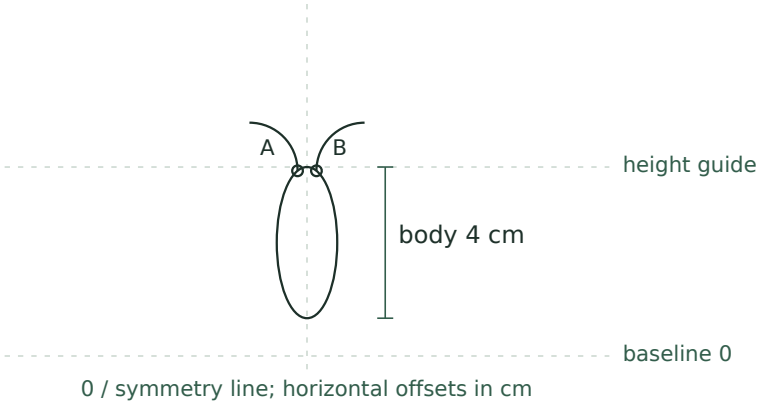
Check: Measure from midline to each widest point; both should read 5 cm.

Measured guide scale 1:2 at 100% Actual Size: 1 stated cm is 5 mm on paper. Double measured paper lengths to recover task values. Keep counts and angles unchanged.

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EXERCISE 2 / ANSWERS

The body height is 4 cm. Using the hypothetical guide of half the body height, how long should each antenna be, and where do they attach?



Each antenna curve is about 2 cm; the straight endpoint chord is shorter.

Each antenna should be about 2 cm long and attach at the top of the body, one on each side of the midline.

Why: Half of 4 cm is 2 cm; antennae attach at the body top, not the wings.

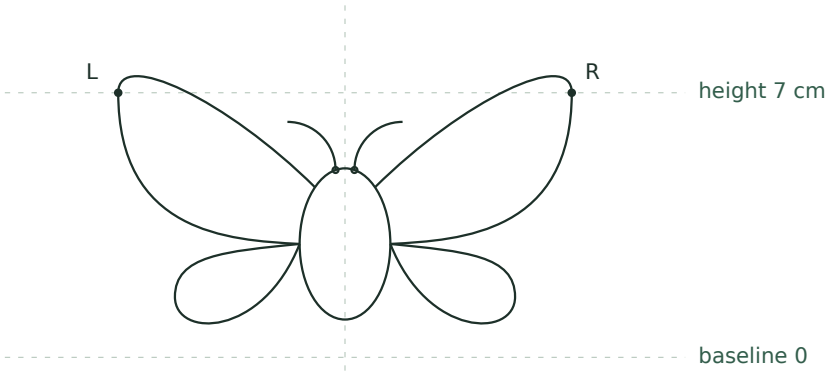
Check: Measure each antenna from attachment to tip; both should be close to 2 cm and start equidistant from midline.

Measured guide scale 1:2 at 100% Actual Size: 1 stated cm is 5 mm on paper. Double measured paper lengths to recover task values. Keep counts and angles unchanged.

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EXERCISE 3 / ANSWERS

A student draws the left forewing tip 6 cm left of midline and 7 cm above baseline, but the right tip is 5 cm right of midline and 7 cm above baseline. Is the outline symmetric by the measured-point convention?



Corrected: left and right 6 cm at the same 7 cm height.

No. The horizontal distances differ by 1 cm, so the measured points are not mirrored.

Why: Symmetry requires equal horizontal distances from midline at the same height.

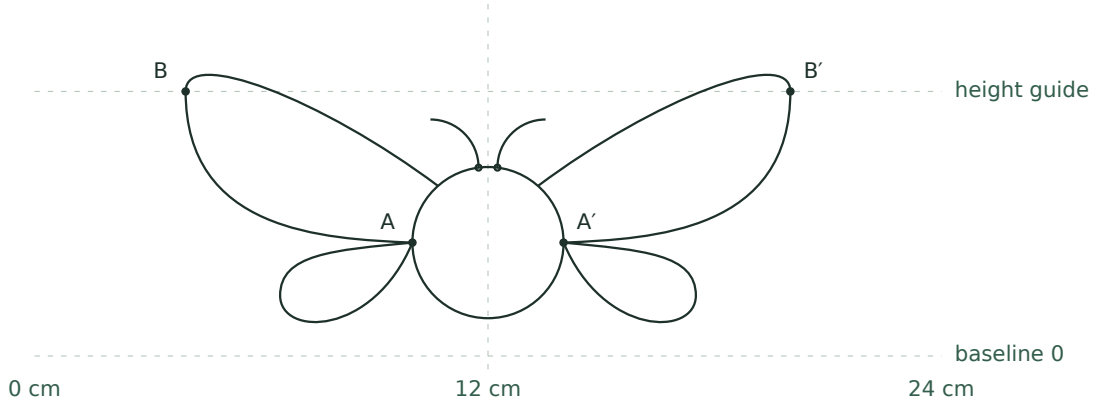
Check: Subtract the two horizontal distances: 6 cm minus 5 cm equals 1 cm difference; adjust the right tip to 6 cm.

Measured guide scale 1:2 at 100% Actual Size: 1 stated cm is 5 mm on paper. Double measured paper lengths to recover task values. Keep counts and angles unchanged.

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EXERCISE 4 / ANSWERS

On a 24 cm wide paper, midline is at 12 cm. The left forewing root is 2 cm left of midline and the left tip is 8 cm left of midline. List the mirrored right root and tip positions and one check.



The task does not give numeric vertical heights. Vertical placement in the illustration is chosen only for layout: each mirrored point must copy its left partner's height.

Right root is 2 cm right of midline; right tip is 8 cm right of midline. Check by measuring both roots and both tips from the midline.

Why: Each left point mirrors to an equal distance on the right at the same height.

Check: Measure root distances (both 2 cm) and tip distances (both 8 cm) from midline.

Measured guide scale 1:2 at 100% Actual Size: 1 stated cm is 5 mm on paper. Double measured paper lengths to recover task values. Keep counts and angles unchanged.