Winged Heart Drawing: Symmetric Feather Construction

Original tasks 1, 2, 3 / complete keys

Task 1

A heart is 10 cm tall. The upper attachment pair is 3 cm below the top and the lower pair is 5 cm below the top. Mark where the left and right upper attachment points should be if each is 2 cm from the axis.

Answer: Left upper attachment: 2 cm left of the axis, 3 cm below the top. Right upper attachment: 2 cm right of the axis, 3 cm below the top.

Reason: Attachment pairs must be level and equal distance from the axis. The given height and distance define both points.

Check: Measure each point from the axis and from the top point; both should read 2 cm and 3 cm respectively.

Task 2

The left inner feather row has four feathers. Their tips are 2 cm, 3 cm, 4 cm, and 5 cm from the axis at heights 3 cm, 4 cm, 5 cm, and 6 cm below the top. List the matching right tip distances and heights.

Answer: Right tips: 2 cm, 3 cm, 4 cm, and 5 cm from the axis at heights 3 cm, 4 cm, 5 cm, and 6 cm below the top.

Reason: Mirror symmetry requires each right tip to match its left partner in distance from the axis and height.

Check: Pair each left tip with a right tip and confirm equal distance and height for all four pairs.

Task 3

A drawing shows five left feathers but only four right feathers. The left tips are at 2, 3, 4, 5, and 6 cm from the axis. What is the simplest correction to restore symmetry?

Answer: Add one right feather to match the missing left partner, placing its tip at the same distance from the axis and height as the unmatched left feather.

Reason: Feather counts must match. The unmatched left feather identifies the missing right partner's position.

Check: Recount feathers on both sides and confirm every left tip has a right partner at equal distance and height.

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Original tasks 4 / complete keys

Task 4

The heart is 12 cm tall and 9 cm wide. The upper attachment pair is 4 cm below the top. A left feather tip is 3 cm from the axis at 4 cm below the top. The right feather tip is drawn 4 cm from the axis at 4 cm below the top. Is the pair symmetric, and what change fixes it?

Answer: No. The right tip should be 3 cm from the axis, not 4 cm, at the same height. Move the right tip 1 cm closer to the axis.

Reason: Symmetric pairs require equal distances from the axis at the same height. The heights match but the distances do not.

Check: Measure both tips from the axis at the same height; the distances should be equal.

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Source rubric / reflection

- [ ] Heart outline is symmetric about the vertical axis within the chosen measurement check.
- [ ] Upper and lower wing attachment pairs are level and at equal distances from the axis.
- [ ] Left and right wings have the same feather count and row order.
- [ ] Each feather has a partner at the same height and equal distance from the axis.
- [ ] Feather overlaps read as layered, with the heart outline stronger than feather lines.
- [ ] Valid stylistic alternatives are accepted if balance, count, and pairing are preserved.

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