# Heart Pencil Drawing: Step-by-Step Construction Guide

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a heart with W equal to 6 cm and H equal to 5.4 cm. State the distances from the center line to the widest limits and the distance from the top midline to the bottom point.

Answer: The widest limits are 3 cm from the center line on each side, and the bottom point is 5.4 cm below the top midline.

Reason: Half of W is 3 cm, so each widest limit is 3 cm from the center. H is the vertical distance from the top midline to the bottom point, so it is 5.4 cm.

Check: Measure the total width across the widest limits; it should be about 6 cm. Measure the vertical distance from the top midline to the bottom point; it should be about 5.4 cm.

Task 2

A heart is drawn with W equal to 8 cm and H equal to 7.2 cm. A second heart uses the same proportion but is half the size. What are the new W and H?

Answer: The new W is 4 cm and the new H is 3.6 cm.

Reason: Half of 8 cm is 4 cm, and half of 7.2 cm is 3.6 cm. Scaling both dimensions by the same factor keeps the proportion.

Check: Divide the new W by the old W and the new H by the old H; both ratios should be 0.5.

Task 3

Describe how to check that the two upper arcs are symmetric when W is 12 cm and H is 10.8 cm.

Answer: Mark the center line and the widest limits at 6 cm on each side. Compare the height of the left arc and the right arc at two or three horizontal levels; the heights should match within a small tolerance.

Reason: Symmetry means the left and right sides mirror each other. Equal distances to the widest limits and matching arc heights at the same levels are simple checks.

Check: Measure from the center line to each widest limit; both should be about 6 cm. Measure the vertical distance from the top midline to a point on each arc at the same horizontal distance from the center; the two distances should be close.

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Original tasks 4 / complete keys

Task 4

Draw a heart with W equal to 9 cm and H equal to 8.1 cm, then add light shading on the right side. State one check that the shading did not change the shape.

Answer: After shading, re-measure the total width across the widest limits and the vertical distance from the top midline to the bottom point. They should still be about 9 cm and 8.1 cm.

Reason: Shading should stay inside the outline and should not move the landmarks. Re-measuring the same dimensions confirms the shape is unchanged.

Check: Use the same measuring points as before shading. If the width and height match the original values within a small tolerance, the shading did not alter the construction.

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Source rubric / reflection

- [ ] The heart has a clear top midline, two upper arcs, and a single bottom point.
- [ ] The left and right widest limits are approximately equal distances from the center line.
- [ ] The lower sides connect the widest limits to the bottom point without bulging outward.
- [ ] The outline is continuous and the line weight is reasonably even.
- [ ] If shading is used, it stays inside the outline and is lighter than the outline.
- [ ] The chosen width and height are stated and the construction matches them within a small tolerance.

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