Draw the Other Half: Mirror Symmetry Practice

Original tasks 1, 2 / complete keys

Task 1

A leaf half is given on the left of a vertical axis. The stem base is on the axis at the baseline. The leaf tip is on the axis six squares above the baseline. The widest point of the leaf is three squares left of the axis and four squares above the baseline. Complete the right half.

Answer: The stem base stays on the axis at the baseline. The leaf tip stays on the axis six squares above the baseline. The reflected widest point is three squares right of the axis and four squares above the baseline. Draw a smooth curve from the stem base through the reflected widest point to the leaf tip, matching the curve on the left.

Reason: Axis points do not move. The widest point is reflected by counting three squares to the right at the same height of four squares. The curve is reflected by sampling the widest point and joining smoothly.

Check: Fold along the axis and compare. Measure three squares from the axis to the widest point on each side and confirm both are four squares above the baseline.

Task 2

A boat half is given on the left of a vertical axis. The mast top is on the axis five squares above the baseline. The hull front corner is four squares left of the axis at the baseline. The sail corner is two squares left of the axis and three squares above the baseline. Complete the right half.

Answer: The mast top stays on the axis five squares above the baseline. The reflected hull front corner is four squares right of the axis at the baseline. The reflected sail corner is two squares right of the axis and three squares above the baseline. Connect the hull corner to the axis at the baseline and draw the sail from the mast to the reflected sail corner.

Reason: Each feature is reflected by counting squares from the axis and keeping the same height. The hull edge and sail are straight lines between reflected points.

Check: Measure four squares from the axis to each hull corner and two squares to each sail corner. Confirm heights: zero for hull corners, three for sail corners, five for mast top.

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Original tasks 3, 4 / complete keys

Task 3

A simple flower half is given on the left of a vertical axis. The stem is on the axis. The center of the flower is on the axis four squares above the baseline. One petal tip is three squares left of the axis and five squares above the baseline. Another petal tip is one square left of the axis and two squares above the baseline. Complete the right half.

Answer: The stem and flower center stay on the axis. The reflected first petal tip is three squares right of the axis and five squares above the baseline. The reflected second petal tip is one square right of the axis and two squares above the baseline. Draw petals from the center to each reflected tip, matching the petal shapes on the left.

Reason: Axis features remain fixed. Petal tips are reflected by counting squares from the axis and matching heights. Petal outlines are curves sampled from the center to each tip.

Check: Fold along the axis. Measure three squares to the first petal tip and one square to the second on both sides. Confirm heights of five and two squares above the baseline.

Task 4

A simple arrow half is given on the left of a vertical axis. The arrow shaft lies on the axis from the baseline to four squares above it. The arrowhead outer corner is two squares left of the axis and four squares above the baseline. The arrowhead inner corner is one square left of the axis and three squares above the baseline. Complete the right half.

Answer: The shaft stays on the axis. The reflected outer corner is two squares right of the axis and four squares above the baseline. The reflected inner corner is one square right of the axis and three squares above the baseline. Connect the shaft top to the reflected outer corner and then to the reflected inner corner to complete the arrowhead.

Reason: The shaft is on the axis and does not move. The arrowhead corners are reflected by counting squares from the axis and keeping heights. Straight lines connect the reflected points.

Check: Measure two squares to the outer corner and one square to the inner corner on each side. Confirm heights of four and three squares above the baseline. Fold along the axis to compare alignment.

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Source rubric / reflection

- [ ] Mirror axis is correctly identified and used as the zero line.
- [ ] At least three key features are reflected at equal distance from the axis.
- [ ] Heights above the baseline match between the given half and the completed half.
- [ ] Points on the axis remain on the axis.
- [ ] Curves are reflected by sampling points and joining them in the same order.
- [ ] Line placement follows the stated convention: even thickness and lines through counted square centers.
- [ ] Valid stylistic alternatives are accepted if counted positions match.

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