Draw Contour Lines on a Mirror with a Marker

Original tasks 1, 2 / complete keys

Task 1

A reflected rectangular card edge runs from a change point at 3 cm from the left mirror edge to 7 cm from the left edge, both at 4 cm from the bottom (hypothetical example). With a 1 mm marker tip as offset, describe the straight contour segment and one midpoint check.

Answer: Draw a straight segment between the two change points, keeping the line 1 mm from the reflected edge from your fixed eye position. The midpoint is at 5 cm from the left edge and 4 cm from the bottom; check that the line stays 1 mm from the edge there.

Reason: The segment is straight because the reflected edge is straight between the change points; the midpoint is the average of the two horizontal positions.

Check: Measure the line-to-edge distance at both change points and the midpoint; all should equal the stated 1 mm offset within your marker width.

Task 2

A reflected curved handle has change points at 2 cm, 6 cm, and 9 cm from the left mirror edge, all at 6 cm from the bottom (hypothetical example). Describe how to plan and draw the contour with a 1 mm offset.

Answer: Mark the three change points lightly, connect them with two short straight segments, and keep each segment 1 mm from the reflected edge from the fixed eye position. Check at each change point and at the midpoint of each segment.

Reason: Breaking a curve into short segments reduces wandering and makes alignment checks local and simple.

Check: At each change point and segment midpoint, confirm the line-to-edge distance equals the stated offset; correct only the drifting segment.

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Original tasks 3, 4 / complete keys

Task 3

You notice the reflected edge appears doubled near the top of the mirror. State a convention, describe the line you would draw, and give one check.

Answer: Convention: trace the outer visible boundary of the reflected object. Draw the line 1 mm from that outer boundary from the fixed eye position. Check at the top change point that the line follows the outer boundary, not the inner doubled edge.

Reason: A doubled reflection offers two candidate edges; stating which one you follow makes the result checkable and consistent.

Check: Compare the line with both visible edges at the top change point and confirm it matches the stated outer-boundary convention.

Task 4

After drawing, your line drifts 2 mm away from the reflected edge at one midpoint (hypothetical example). Describe the correction and the re-check.

Answer: Clean the drifting segment with a cloth, re-mark the two change points, and redraw that segment to the stated 1 mm offset. Re-check at both change points and the midpoint from the same eye position.

Reason: Correcting only the drifting segment preserves the rest of the contour and keeps the offset consistent.

Check: Measure the line-to-edge distance at the corrected midpoint and both change points; all should equal the stated offset.

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Source rubric / reflection

- [ ] Convention is stated clearly before drawing.
- [ ] Eye position is fixed and used for all comparisons.
- [ ] Offset and line width are stated in consistent units.
- [ ] Change points are marked and segments connect them.
- [ ] Checks are made at change points and midpoints.
- [ ] Valid alternatives are accepted when the stated convention is followed.

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