Drawing a Mirror Reflection: Placing the Reflected Object Correctly

Original tasks 1, 2 / complete keys

Task 1

A vertical mirror line is drawn. A cup's left edge is 3 cm in front of the mirror and its right edge is 7 cm in front. The cup top is 5 cm above the baseline. State the reflected edge distances behind the mirror and the reflected top height.

Answer: Reflected left edge: 3 cm behind the mirror. Reflected right edge: 7 cm behind the mirror. Reflected top: 5 cm above the baseline.

Reason: Each point projects straight through the mirror line at equal distance. Left-right order reverses, but vertical height stays the same.

Check: Measure from the mirror line to each reflected edge. Confirm 3 cm and 7 cm behind, and confirm the reflected top is 5 cm above the baseline using the same unit.

Task 2

A vertical mirror line is drawn. An object has a handle on its left side, 2 cm from the object's centre, and a highlight 1 cm to the right of centre. The object centre is 4 cm in front of the mirror. Describe where the reflected handle and reflected highlight appear relative to the reflected centre.

Answer: The reflected handle appears 2 cm to the right of the reflected centre. The reflected highlight appears 1 cm to the left of the reflected centre. The reflected centre is 4 cm behind the mirror.

Reason: Left-right offsets reverse. The handle's left offset becomes a right offset, and the highlight's right offset becomes a left offset. The centre's distance behind the mirror equals its distance in front.

Check: Measure the reflected centre at 4 cm behind the mirror. Measure the reflected handle 2 cm to the right of that centre and the reflected highlight 1 cm to the left. Confirm the original and reflected offsets have equal magnitudes.

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Original tasks 3, 4 / complete keys

Task 3

A vertical mirror line is drawn. An original edge is 5 cm in front of the mirror. The drawn reflected edge is 8 cm behind the mirror. Find the placement error and state how to correct it.

Answer: The placement error is 3 cm. Move the reflected edge 3 cm toward the mirror line so it sits 5 cm behind.

Reason: The reflected distance should equal the original distance. Subtracting the smaller distance from the larger gives 8 - 5 = 3 cm.

Check: After moving the reflected edge, measure again. The reflected distance should be 5 cm behind the mirror, matching the original 5 cm in front. Use one unit throughout.

Task 4

A vertical mirror line is drawn. A label on the object reads with its first letter on the left. The label's x-height is 1.5 cm from baseline to midline. Describe the reflected label's left-right order and x-height, allowing for valid letter-style differences.

Answer: The reflected label's first letter appears on the right, and the x-height remains 1.5 cm from baseline to midline. Letter shapes may differ stylistically as long as the height and reversed order are correct.

Reason: Reflection reverses left-right order. The baseline-to-midline convention fixes x-height, so the reflected x-height should match the original.

Check: Measure the reflected label's baseline-to-midline height and confirm 1.5 cm. Check that the first letter is on the right. Accept valid stylistic differences in letter shape.

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Source rubric / reflection

- [ ] Mirror line is fixed and clearly labelled.
- [ ] At least three key object points are projected perpendicularly through the mirror line.
- [ ] Reflected distances behind the mirror equal original distances in front within the stated tolerance.
- [ ] Asymmetric features and highlights are reversed left-right.
- [ ] Vertical positions such as top and bottom are preserved.
- [ ] X-height convention is applied from baseline to midline, and valid letter-style alternatives are accepted.
- [ ] Symmetry check uses consistent units and simple arithmetic.
- [ ] No refraction, water reflection, or general perspective effects are included.

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