# Cross-Contour Lines on a Side-Lying Bottle

Original tasks 1, 2, 3 / complete keys

Task 1

A bottle lies on its side with its axis tilted 15 degrees above horizontal. The body is 10 cm long and 3 cm wide. Place three cross-contour lines evenly along the body. Describe where they go and how they tilt.

Answer: The axis is at 15 degrees. Three lines divide the 10 cm body into four spaces of 2.5 cm each. Each line crosses the axis at about a right angle and tilts 15 degrees with the axis. Curves are gentle in the middle and sharper near the edges.

Reason: Even spacing means dividing the body length by the number of spaces, not by the number of lines. The tilt of each wrap line matches the axis tilt.

Check: Measure the body length and confirm three equal spaces. Check that each line reaches both sides and tilts consistently with the axis.

Task 2

A bottle lies on its side with its axis tilted 40 degrees above horizontal. The body is 8 cm long and 2 cm wide. Draw four wrap lines. Explain how their direction differs from a 20-degree version of the same bottle.

Answer: The axis is at 40 degrees. Four lines create five spaces of 1.6 cm each along the 8 cm body. Each wrap line tilts 40 degrees with the axis. Compared with a 20-degree version, the wrap curves are steeper and follow the steeper axis, while the spacing and curvature pattern stay the same.

Reason: Changing the axis tilt changes the direction of every wrap line, but the wrap logic and even spacing remain constant.

Check: Compare the two tilts side by side. Confirm that the line direction changes with the axis and that spacing is still even.

Task 3

A bottle lies on its side with its axis tilted 25 degrees. The body is 9 cm long and 3 cm wide. You draw five wrap lines but one stops halfway across the body. Identify the mistake and state the fix.

Answer: The mistake is an incomplete wrap line that does not reach both sides of the outline. The fix is to continue the line smoothly to the opposite side so it crosses the full visible surface.

Reason: A cross-contour line must describe the whole visible wrap; stopping halfway breaks the form and looks like a stray mark.

Check: Trace each line from one outline edge to the other. Any line that stops short needs to be extended.

# Cross-Contour Lines on a Side-Lying Bottle

Original tasks 4 / complete keys

Task 4

A bottle lies on its side with its axis tilted 30 degrees. The body is 12 cm long and 4 cm wide. You place wrap lines at 1 cm, 3 cm, 5 cm, 7 cm, 9 cm, and 11 cm along the axis. Are the lines evenly spaced? If not, state a corrected spacing for six lines.

Answer: The lines are not evenly spaced: the gaps are 2 cm, 2 cm, 2 cm, 2 cm, 2 cm, and then 1 cm to the end, which is uneven. For six lines, divide the 12 cm body into seven spaces: 12 divided by 7 is about 1.71 cm. Place lines at approximately 1.71, 3.43, 5.14, 6.86, 8.57, and 10.29 cm.

Reason: Even spacing means equal gaps between lines and equal gaps from the ends. Six lines create seven spaces.

Check: Subtract consecutive positions and compare the gaps. All gaps should be equal within a small drawing tolerance.

# Cross-Contour Lines on a Side-Lying Bottle

Source rubric / reflection

- [ ] Axis is clearly tilted and consistent with the bottle outline.
- [ ] Body sides are parallel to the axis and the width is consistent.
- [ ] Four to six cross-contour lines are evenly spaced along the body.
- [ ] Each wrap line crosses the axis at roughly a right angle and tilts with the axis.
- [ ] Curvature is gentle near the center and sharper near the outline edges.
- [ ] Lines are continuous, reach both sides of the outline, and do not cross.
- [ ] No shading or isometric construction is used.
- [ ] Valid alternatives: different tilt angles, line counts, and spacing are acceptable if the wrap logic and consistency are maintained.

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