Cross-Contour City Drawing: Wrapping Surface Lines Around Urban Forms

Original tasks 1, 2 / complete keys

Task 1

A cylindrical tank is 4 cm wide and 8 cm tall. Draw four ring-like cross-contours centered on the vertical axis x=2 cm, with ellipse centers at y=1.0, 1.5, 2.5, and 3.0 cm above the bottom. State the successive vertical gaps and how to check the loops.

Answer: The ellipse centers are at the four stated heights. The successive vertical gaps are 0.5 cm, 1.0 cm, and 0.5 cm. Each ellipse is centered at x=2 cm and meets the tank silhouette at its left and right sides.

Reason: The ellipse centers are separate heights on the vertical centerline. They do not cross a horizontal midline at y=4 cm; each full loop crosses the vertical centerline at its top and bottom. The band spacing is a stated visual choice.

Check: Measure the center gaps as 0.5, 1.0, and 0.5 cm. Confirm x=2 cm passes through the center of each ellipse and that the left/right ends meet the cylinder silhouette.

Task 2

A pitched roof guide is 5 cm wide and 3 cm tall. Draw three cross-contour lines at heights 0.4, 1.4, and 2.0 cm that each follow the slope, bend over the ridge at 2.6 cm, and continue down the other slope. Keep the chosen spacing explicit.

Answer: Place the lines at 0.4, 1.4, and 2.0 cm. The gaps from the first to second and second to third are 1.0 cm and 0.6 cm; the gap from the third line to the ridge at 2.6 cm is also 0.6 cm. Carry each contour across the ridge and down the far slope.

Reason: The heights and gaps are directly specified and checked arithmetically. The bend over the ridge shows each line following the roof surface; the selected spacing is an illustration convention.

Check: Subtract the heights and confirm gaps 1.0, 0.6, and 0.6 cm. Trace each contour over the ridge and confirm it reaches the opposite roof edge.

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Original tasks 3, 4 / complete keys

Task 3

A 6 by 6 cm dome guide has a crown at y=4.6 cm. Draw three contour arcs at y=1.0, 2.2, and 3.4 cm, centered on x=3 cm. State their spacing and how each arc ends.

Answer: Place the arcs at the three stated heights. The gaps are 1.2 cm and 1.2 cm. Curve each arc across the dome symmetrically about x=3 cm and let it meet the dome silhouette at both ends.

Reason: The equal gaps follow from 2.2−1.0=1.2 and 3.4−2.2=1.2 cm. Each is a separate contour line, not a line that continues beyond the dome boundary.

Check: Measure the two gaps, check the arc centers lie on x=3 cm, and confirm each curve reaches the silhouette at its left and right ends.

Task 4

Draw two separate forms, a 6 cm tower and a 4 cm wide cylindrical tank. Add two contours to each, then show how an overlap is indicated without joining unrelated surface lines.

Answer: Keep the two tower contours on its flat faces and bend them over a visible tower corner. Draw two tank ellipses centered on its vertical axis. If the tank overlaps the tower, end the hidden contour at the tank silhouette; do not continue a line from one object onto the other unless the surfaces actually meet.

Reason: Each object has its own surface. Overlap is shown by a visible silhouette and a hidden-edge decision, not by connecting unrelated contour paths.

Check: Trace each contour to its own silhouette. Confirm no line is extended beyond an object or joined to an unrelated surface.

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Source rubric / reflection

- [ ] All cross-contour lines visibly wrap across at least one corner or curved edge.
- [ ] Spacing is tighter on sharply turning surfaces and wider on flat panels, with three measured points recorded in centimeters.
- [ ] Contours align with each form centerline or surface guides; they meet the silhouette cleanly and do not have to cross a horizontal midline.
- [ ] Valid alternatives such as broken or dotted lines are accepted if the wrap remains visible.
- [ ] No random crossings on a single surface; overlaps occur only between separate forms.
- [ ] Check surface-following contours, intentional spacing choices, and clear silhouettes.

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