Drawing Isometric Cliffs with Layered Faces

Original tasks 1, 2 / complete keys

Task 1

Draw a cliff with a base rhombus 2 units along depth-left and 2 units along depth-right. Add two bands: band 1 height 1 unit, band 2 height 2 units offset 1 unit forward along depth-right. State the total height and the height of the exposed depth-right face.

Answer: Total height is 3 units. The exposed depth-right face is 2 units high because band 2 offsets forward along depth-right.

Reason: Band heights sum to 1 + 2 = 3. The forward offset along depth-right exposes the vertical face of band 2, whose height is 2 units.

Check: Measure each band height in grid units, sum them, and confirm the depth-right face height matches band 2.

Task 2

A cliff has four bands with heights 1, 1, 2, and 1 units. Band 3 offsets 1 unit backward along depth-left. What is the total height, and which side loses visible vertical face?

Answer: Total height is 5 units. The depth-left side loses visible vertical face because band 3 steps backward along depth-left.

Reason: Sum 1 + 1 + 2 + 1 = 5. A backward offset along depth-left hides part of the depth-left face at that band.

Check: Sum the recorded band heights and compare to the measured total; inspect the depth-left face at band 3 for reduced exposure.

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Original tasks 3, 4 / complete keys

Task 3

Draw a cliff with three bands of equal height 1 unit and no offsets. The base is 3 units along depth-left and 1 unit along depth-right. Describe the visible vertical faces and confirm the total height.

Answer: Total height is 3 units. Visible vertical faces are the front edge (3 units high), the depth-left face (3 units wide and 3 units high), and the depth-right face (1 unit wide and 3 units high), where not hidden by the base shape.

Reason: No offsets means each band sits directly above the previous, so vertical faces align. Sum 1 + 1 + 1 = 3.

Check: Measure the front edge height and confirm it equals 3 units; check that band tops align with the base footprint.

Task 4

A cliff plan uses bands of heights 2, 1, and 2 units. Band 1 offsets 1 unit forward along depth-left; band 2 offsets 1 unit backward along depth-right. What is the total height, and what is the net offset along depth-left after band 1?

Answer: Total height is 5 units. The net offset along depth-left after band 1 is 1 unit forward.

Reason: Sum 2 + 1 + 2 = 5. Band 1 is the only band offsetting along depth-left, so the net depth-left offset is 1 unit forward.

Check: Sum band heights and compare to measured total; trace the depth-left guide to confirm the 1-unit forward shift at band 1.

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Source rubric / reflection

- [ ] All receding edges follow the chosen isometric guides within a small measured tolerance.
- [ ] All vertical edges are parallel to the page edge.
- [ ] Layer offsets are whole grid units and recorded.
- [ ] Total height equals the sum of band heights.
- [ ] Hidden guide lines are erased or clearly distinguished.
- [ ] Valid alternative layer arrangements are accepted if angles, verticals, and unit arithmetic remain consistent.

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