How to Draw a Boat from Side, Front, and Overhead Views

Original tasks 1, 2, 3 / complete keys

Task 1

A boat has a side view 8 units long and 2 units high. The front view is 3 units wide and 2 units high. What should the overhead view's length and width be?

Answer: Length 8 units and width 3 units.

Reason: The overhead length must match the side length, and the overhead width must match the front width. The front height of 2 units matches the side height, confirming consistency.

Check: Compare the three pairs: side length 8 equals overhead length 8; front height 2 equals side height 2; front width 3 equals overhead width 3.

Task 2

A student draws a side view 12 units long, a front view 5 units wide, and an overhead view 10 units long and 5 units wide. Which measurement is inconsistent, and what should it be?

Answer: The overhead length is inconsistent; it should be 12 units to match the side view.

Reason: The overhead length must equal the side length. The width pair (5 and 5) and the height pair (if both are equal) are consistent, but the length pair is not.

Check: List the three pairs: side length versus overhead length (12 versus 10, mismatch); front width versus overhead width (5 versus 5, match); front height versus side height (check that both are equal).

Task 3

You want a boat 9 units long, 4 units wide, and 3 units high. State the length, width, and height you would use in each of the three views.

Answer: Side view: length 9, height 3. Front view: width 4, height 3. Overhead view: length 9, width 4.

Reason: Each view shows two of the three dimensions. The side view shows length and height; the front view shows width and height; the overhead view shows length and width.

Check: Verify that each dimension appears in exactly two views and that the paired values match: length 9 in side and overhead; width 4 in front and overhead; height 3 in side and front.

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Original tasks 4 / complete keys

Task 4

A front view shows a hull 6 units wide at the widest point and 2 units high. The side view shows a length of 11 units and a height of 2 units. Describe the overhead view's outline using these measurements, and state one check you would perform.

Answer: The overhead outline should be 11 units long and 6 units wide at its widest point, with a smooth hull shape connecting the bow and stern ticks. One check is to confirm that the overhead length of 11 equals the side length of 11.

Reason: The overhead view combines the side-view length and the front-view width. The height pair (2 and 2) confirms the side and front views agree vertically.

Check: Measure the overhead length against the side length and the overhead width against the front width; both pairs should match.

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Source rubric / reflection

- [ ] All three views are labeled and placed in separate panels.
- [ ] Side-view length matches overhead-view length within the stated unit scale.
- [ ] Front-view height matches side-view height from the shared baseline.
- [ ] Front-view width matches overhead-view width at the widest point.
- [ ] Construction lines or tick marks show how measurements were transferred.
- [ ] The boat outline is clear and recognizable in each view.
- [ ] Valid alternative hull shapes are accepted if the three paired measurements remain consistent.

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