Volleyball Court Drawing: Net, Attack Lines, and Labeled Zones

Original tasks 1, 2, 3 / complete keys

Task 1

A court plan uses a scale of 1:100. The court is 18 m long and 9 m wide. Calculate the drawn length and width in centimeters, and state the drawn distance from the net to each attack line.

Answer: Drawn length: 18 m / 100 = 0.18 m = 18 cm. Drawn width: 9 m / 100 = 0.09 m = 9 cm. Attack line distance: 3 m / 100 = 0.03 m = 3 cm from the net.

Reason: Divide each real measurement by the scale denominator, then convert meters to centimeters by multiplying by 100. The attack line is 3 m from the net, so the same conversion applies.

Check: Multiply the drawn values by 100 and convert to meters: 18 cm × 100 = 1800 cm = 18 m; 9 cm × 100 = 900 cm = 9 m; 3 cm × 100 = 300 cm = 3 m.

Task 2

On a 1:200 plan, the court rectangle is 9 cm by 4.5 cm. A student draws the net at 3 cm from the left end. Is the net at midcourt? Show the arithmetic and state the correct position.

Answer: No. Midcourt is half of 9 cm, which is 4.5 cm from each end. The net should be at 4.5 cm from the left end, not 3 cm.

Reason: The net divides the court into two equal halves. Half of the drawn length is 9 cm / 2 = 4.5 cm. A net at 3 cm would make one half 3 cm and the other 6 cm, which is unequal.

Check: Measure from both ends: 4.5 cm + 4.5 cm = 9 cm, confirming equal halves.

Task 3

A plan at 1:150 has a court length of 12 cm. The attack line is drawn 2 cm from the net. Convert the attack line distance back to real meters and verify it is 3 m.

Answer: 2 cm × 150 = 300 cm = 3 m. The attack line distance is correct.

Reason: To convert a drawn measurement to real size, multiply by the scale denominator and convert centimeters to meters by dividing by 100. 2 cm × 150 = 300 cm, and 300 cm / 100 = 3 m.

Check: Reverse the conversion: 3 m × 100 = 300 cm; 300 cm / 150 = 2 cm, matching the drawing.

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Original tasks 4 / complete keys

Task 4

A student labels only the front zone on the left half and writes a legend that says 'F = front zone'. List two problems with this labeling and state how to fix them.

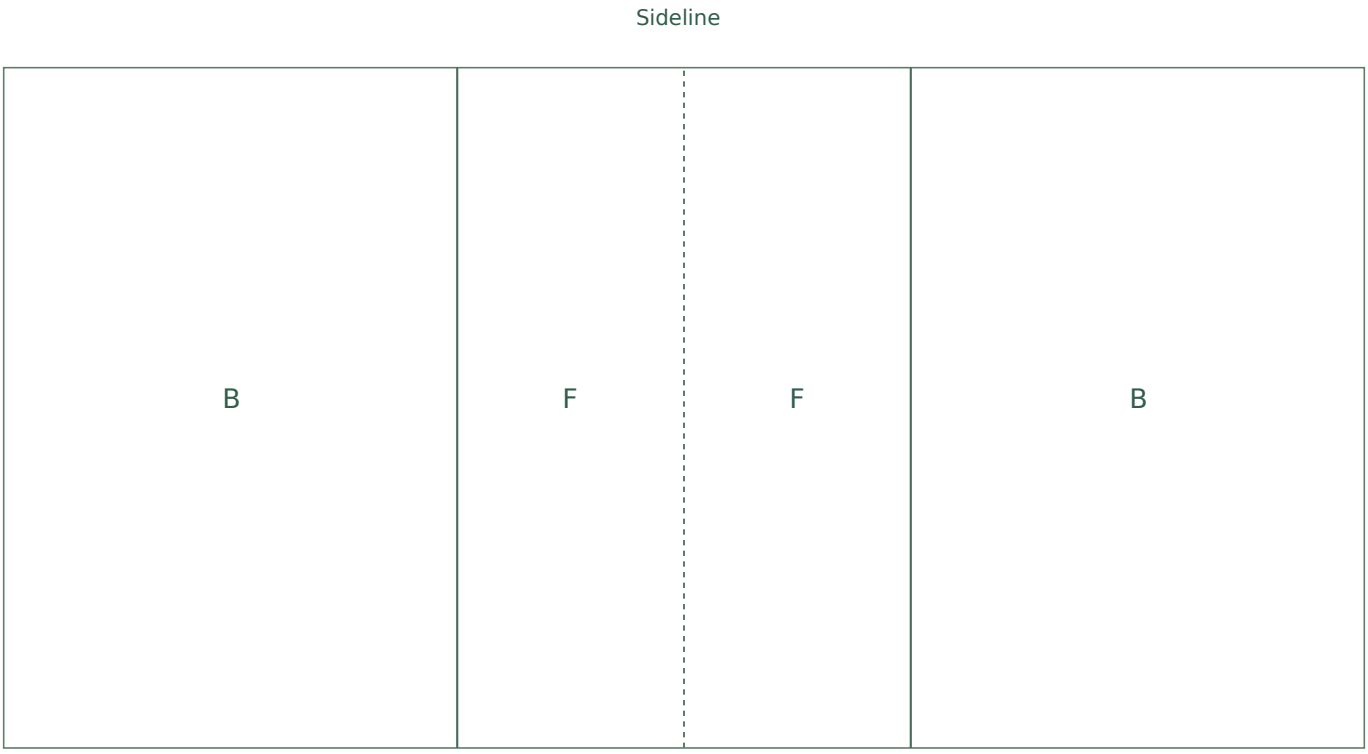
Answer: Problem 1: the back zone is not labeled on the left half. Problem 2: the right half has no zone labels. Fix: label front and back zones on both halves and update the legend to explain every label used.

Reason: A complete court plan labels zones on both halves so the plan is readable and consistent. A legend must cover all labels, not just one.

Check: Count the zone labels: there should be at least four (front and back on each half), and each label should appear in the legend.

Indoor court plan / all stated scales are printed at actual size

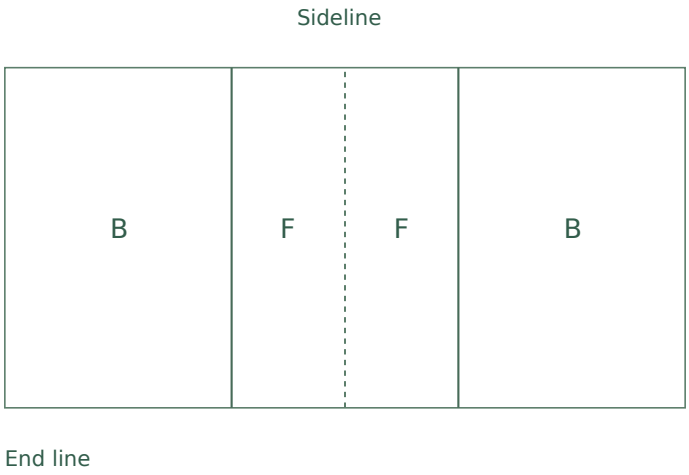
1:100 / 18 cm by 9 cm / attack distance 3 cm



Legend: dashed = net; solid inner lines = attack lines; F = front zone; B = back zone. F and B are labeled on both halves.

Indoor court plan / all stated scales are printed at actual size

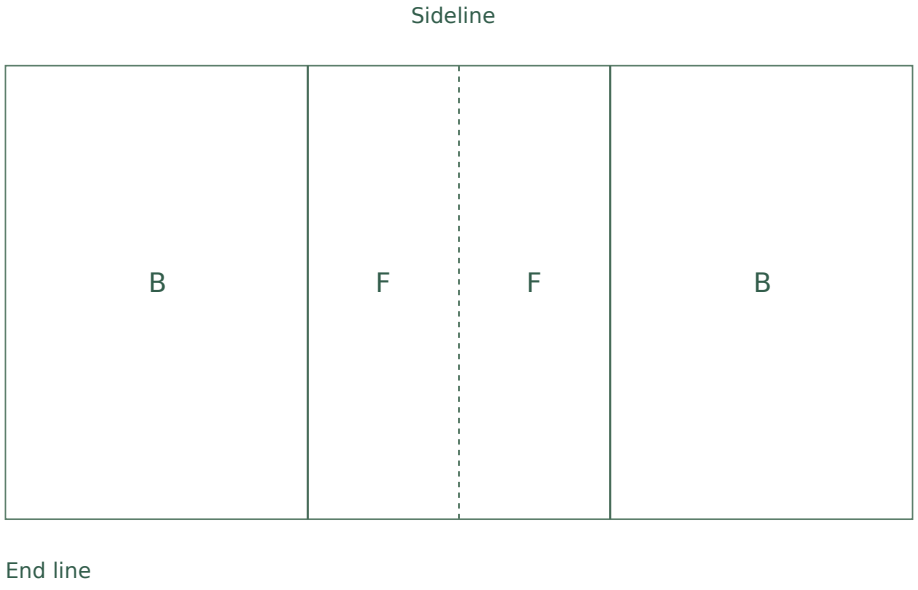
1:200 / 9 cm by 4.5 cm / attack distance 1.5 cm



Legend: dashed = net; solid inner lines = attack lines; F = front zone; B = back zone. F and B are labeled on both halves.

Indoor court plan / all stated scales are printed at actual size

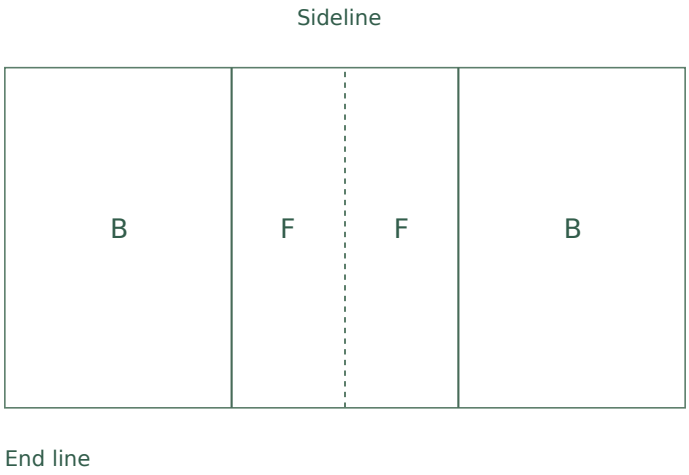
1:150 / 12 cm by 6 cm / attack distance 2 cm



Legend: dashed = net; solid inner lines = attack lines; F = front zone; B = back zone. F and B are labeled on both halves.

Indoor court plan / all stated scales are printed at actual size

1:200 / 9 cm by 4.5 cm / attack distance 1.5 cm



Legend: dashed = net; solid inner lines = attack lines; F = front zone; B = back zone. F and B are labeled on both halves.

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Source rubric / reflection

- [ ] Court rectangle is drawn to the stated scale and labeled with sidelines and end lines.
- [ ] Net line is at midcourt and visually distinct from other lines.
- [ ] Attack lines are 3 m from the net in real terms and parallel to the net.
- [ ] Front and back zones are labeled on both halves with a consistent convention and legend.
- [ ] Arithmetic for scale conversion is shown and checkable.
- [ ] Valid alternatives in labeling or line style are accepted if the legend explains them.

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