Drawing Uniform Garments: Panels, Badges, and Seams

Original tasks 1 / complete keys

Task 1

On a 10 by 14 cm torso rectangle, divide the width into four equal columns and place a 2 cm placket centered on the midline and a 1.5 by 2 cm rectangular badge on the right chest panel. State the badge position and check that it clears the placket by at least 0.5 cm and stays inside the inner panel.

Answer: On a 10 cm-wide torso, each of the four equal columns is 2.5 cm wide. The centered 2 cm placket spans 1 cm on either side of the midline. The right inner panel is the part outside the placket, from 1 cm to 2.5 cm right of the midline, so it is 1.5 cm wide. Place the badge’s placket-side edge 0.5 cm beyond the placket edge, at 1.5 cm right of the midline. A 1.5 cm-wide badge then ends at 3 cm, crossing the panel edge at 2.5 cm by 0.5 cm, so it fails. A 0.75 cm-wide badge ends at 2.25 cm and leaves a 0.25 cm margin to the panel edge. Its top edge can sit 1 cm below the midline. Check that the badge width plus the 0.5 cm clearance is less than the 1.5 cm available panel width.

Reason: The inner panel is 1.5 cm wide (from 1 cm to 2.5 cm right of the midline). A badge starting 0.5 cm from the placket edge (1 cm right of the midline) and extending 1.5 cm ends at 3 cm right of the midline, which is 0.5 cm past the panel's outer edge at 2.5 cm, so the stated badge does not fit. The available run from the placket edge to the panel edge is 1.5 cm; subtracting the 0.5 cm clearance leaves 1 cm for the badge. A 1 cm-wide badge ends exactly at the panel edge and therefore does not stay strictly inside; a 0.75 cm-wide badge leaves a 0.25 cm margin and satisfies the requirement.

Check: Measure the gap between the badge and the placket; it should be at least 0.5 cm. Confirm the badge's outer edge does not cross the inner panel's outer edge at 2.5 cm right of the midline, and that it does not cross the midline. Add the badge width and the clearance; the total must be less than 1.5 cm so the badge stays strictly inside the panel.

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Original tasks 2, 3 / complete keys

Task 2

Draw a collar band 1.5 cm deep on a 12 cm wide top edge with a 2 cm center gap. Draw the placket 2 cm wide and check that the collar gap aligns with the placket edges.

Answer: The collar band is a 1.5 cm deep strip along the top edge with a 2 cm gap centered on the midline. The placket is 2 cm wide centered on the same midline. Check: the collar gap edges and the placket edges both lie 1 cm either side of the midline, so they align.

Reason: Both features are centered on the midline, so alignment is guaranteed if the center line is drawn first. A 2 cm gap matches the 2 cm placket width, so the collar opening lines up with the placket edges rather than overlapping them.

Check: Measure from the left edge to each collar gap edge and to each placket edge; on a 12 cm wide top edge the gap edges and placket edges should both sit 5 cm and 7 cm from the left edge.

Task 3

On a 12 by 16 cm torso rectangle, divide the width into four equal columns and center a 2 cm placket on the 6 cm midline. Test a circular badge 2 cm in diameter with its center 2.5 cm outward from the midline. Does it fit inside the left inner chest panel with at least 0.5 cm clearance from both the placket and the panel’s outer edge? Give a corrected center and radius if it does not.

Answer: The 2 cm diameter badge has radius 1 cm. With center distance d=2.5 cm, it spans from 1.5 cm to 3.5 cm left of the midline, so it crosses the panel edge at 3 cm and fails. A valid correction is center distance d=2 cm with radius r=0.5 cm (a 1 cm diameter badge). It spans from 1.5 cm to 2.5 cm left of the midline, leaving exactly 0.5 cm to the placket edge at 1 cm and 0.5 cm to the panel edge at 3 cm.

Reason: For the left inner panel, the placket boundary is 1 cm from the midline and the outer panel boundary is 3 cm from it. To leave at least 0.5 cm on both sides, the nearest badge edge must satisfy $d-r\geq 1.5$ and the farthest edge must satisfy $d+r\leq 2.5$. The proposed 2 cm diameter circle violates the outer-edge condition; $d=2$ and $r=0.5$ satisfy both exactly.

Check: Let d be the badge-center distance outward from the midline and r its radius. Confirm $d-r\geq 1.5$ cm and $d+r\leq 2.5$ cm. For the corrected example $d=2$ and $r=0.5$, the edges are at 1.5 and 2.5 cm, exactly 0.5 cm from the placket and panel boundaries.

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Original tasks 4 / complete keys

Task 4

On a 12 by 16 cm torso, measure x from the left edge and y downward from the top. Draw the left sleeve seam as a straight segment from shoulder point (1,0) to side-edge point (0,3). Draw a left-panel badge rectangle with bounds x=3.25..4 cm and y=9..11 cm; the placket edge is x=5 and the panel outer edge is x=3. Check that the seam stays inside the torso and does not cross the badge.

Answer: Draw the sleeve seam from (1,0) to (0,3) and the badge rectangle from x=3.25 to 4 and y=9 to 11. Every point on the seam has x between 0 and 1, while every point in the badge has x between 3.25 and 4, so the seam cannot cross the badge. The seam meets the torso side at (0,3) and starts 1 cm inside the top-left corner.

Reason: The horizontal coordinate ranges are disjoint: seam $x \in [0,1]$, badge $x \in [3.25,4]$. The minimum horizontal separation is $3.25-1=2.25$ cm; therefore the seam stays clear of the badge independent of their y positions.

Check: Confirm the seam endpoints are (1,0) and (0,3), all seam points stay within x=0..1, and the badge bounds are x=3.25..4, y=9..11. Check the minimum x-gap is 2.25 cm and that the seam ends on the side edge.

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Source rubric / reflection

- [ ] Panels match the stated grid and are labeled.
- [ ] Collar band depth and center gap match the stated values.
- [ ] Placket width is consistent at top, middle, and bottom.
- [ ] Badge sits inside one panel with the stated margin and does not cross a seam or the panel's outer edge.
- [ ] Optional badge marks remain readable and leave the stated margin.
- [ ] Seam lines connect the labeled points and do not cross badges.
- [ ] Labels are readable and consistent with the recorded values.
- [ ] Alternative badge shapes and seam emphasis pass when placement and spacing checks remain clear.

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