Contour Drawing of a Rook: Edge-Only Chess Piece Study

Original tasks 1, 2 / complete keys

Task 1

Draw a front-view rook in a 50 by 70 mm frame with the origin at the bottom left. Use a 50 mm base, a centered 30 mm shaft, and a centered 25 mm turret; flare the base to the shaft by y=15 mm and place the shaft-to-turret step at y=52.5 mm. Put the midline at y=35 mm. Add four crenellation tops and do not shade.

Answer: Draw the base from x=0 to 50 mm at y=0, narrowing to shaft sides x=10 and x=40 mm at y=15 mm. Continue the shaft to y=52.5 mm, then step inward to the centered 25 mm turret (x=12.5 to 37.5 mm) and rise to y=70 mm. Divide the turret top into four visible crenellation flats. The midline y=35 mm crosses the shaft. Keep the silhouette closed and unshaded.

Reason: The shaft is centered, so its 30 mm width leaves 10 mm on each side of the 50 mm base. The centered 25 mm turret leaves 12.5 mm on each side. Half of the 70 mm height is 35 mm, which places the midline inside the shaft.

Check: Measure base 50 mm, shaft 30 mm, turret 25 mm, and total height 70 mm. Confirm the midline is at 35 mm, count four crenellation flats, and verify the outline closes without shading.

Task 2

Make a paper reference card for the text-defined front rook: base edge from x=0 to 60 mm at y=0; flares to shaft sides x=12 and x=48 mm at y=20; shaft reaches y=60; shoulders step to turret sides x=15 and x=45 mm, which rise to y=80. The turret has four 6 mm top flats and three 2 mm notch bottoms, each notch 6 mm deep. In a separate box, blind-contour the card without looking at the box, then count each straight outline run. How many runs are in the reference?

Answer: There are 22 straight runs: one base bottom + two flares + two shaft sides + two shoulders + two turret sides + four crenellation tops + three notch bottoms + six vertical notch walls = 22. The six walls are the three downward and three upward sides of the notches.

Reason: Each of the three notches adds one horizontal bottom and two vertical walls. Counting only the four top flats and three bottoms omits those six vertical outline segments.

Check: Trace the front perimeter once and tally the groups separately: 1+2+2+2+2+4+3+6. Confirm the total is 22 and that each notch has both a downstroke and an upstroke.

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Original tasks 3, 4 / complete keys

Task 3

Use a front-view rook 80 mm tall: base width 60 mm, narrowing to shaft sides x=12 and x=48 mm at y=20 mm; shaft sides continue to y=60 mm, then step inward to turret sides x=15 and x=45 mm, which reach y=80 mm. The turret top has four 6 mm flats separated by three 2 mm notches 6 mm deep. Draw its continuous outline in a strip 160 mm tall, starting at the base left corner. Add internal edges on the return path, close the line, and keep it inside the strip.

Answer: Use one uninterrupted line from the base left corner around the base, shaft, turret, and crenellations, then add the internal edges on the return path and close at the start. The 80 mm rook fits within the 160 mm strip.

Reason: The strip is twice the stated rook height: 2×80=160 mm. The coordinates and notch dimensions define the front contour without a separate reference image.

Check: Confirm the strip is 160 mm tall, the rook height is 80 mm, the line returns to its start, and no part lies outside the strip.

Task 4

Use the front-view contour only to compare with the text-described target ratio. The target has a 60 mm base and 30 mm turret; your drawing has a 60 mm base and 40 mm turret. Apply this pass rule: flag a width difference only if it is greater than one quarter of the 60 mm base (15 mm). Exact matching to the target ratio is optional. What is the ratio difference, and which front-view edge, if any, should you adjust? No angled view is needed.

Answer: Your turret-to-base ratio is 40/60≈0.67; the target ratio is 30/60=0.5, so the ratio difference is about 0.17. The turret-width difference is 40−30=10 mm, below the 15 mm flag threshold. The drawing passes the stated tolerance, so no edge adjustment is required. Exact matching is optional: if you choose it, move each centered turret side inward by 5 mm to reduce the width from 40 mm to 30 mm; otherwise leave the 40 mm turret unchanged.

Reason: The pass/fail rule uses width difference, not an exact ratio match. The target width difference is 10 mm, while one quarter of the base is 15 mm; since 10≤15, the drawing passes without adjustment. The 5 mm inward movement on each side is only an optional way to match the target ratio exactly.

Check: Measure base and turret widths. Compute 60/4=15 mm and the difference |40−30|=10 mm; pass because 10≤15, with no adjustment required. If choosing the optional exact match, move both sides inward by 5 mm and then confirm 30/60=0.5. Do not require the exact ratio for the tolerance pass.

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Source rubric / reflection

- [ ] Silhouette closes without gaps.
- [ ] No shading, hatching, or value marks.
- [ ] Turret width is approximately half the base width in the front view.
- [ ] Four crenellation tops are visible in the front view.
- [ ] Continuous-line strip has no pencil lifts.
- [ ] Blind-contour box records at least ten edge changes.
- [ ] If an angled view is included, it is a separate observed contour with no projected back outline or depth construction.
- [ ] Measurements use consistent units and are labeled as hypothetical examples where chosen; the midline is treated as a relative guide, not a universal standard.

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