Cross-Contour Shoe Drawing: Surface Lines Practice

Original tasks 1, 2 / complete keys

Task 1

A shoe side view is 15 cm long. You draw six cross-contour lines, creating five gaps. The gaps are 2.8 cm, 3.0 cm, 3.2 cm, 3.0 cm, and 3.0 cm. Calculate the average gap and state whether all gaps are within a hypothetical tolerance of plus or minus 0.4 cm.

Answer: Average gap = (2.8 + 3.0 + 3.2 + 3.0 + 3.0) divided by 5 = 15.0 divided by 5 = 3.0 cm. Tolerance range: 2.6 cm to 3.4 cm. All gaps fall within this range, so spacing is consistent.

Reason: Sum the five gaps to get 15.0 cm, divide by five gaps to find the average, then compare each gap to the tolerance range around the average.

Check: Re-add the gaps and confirm the sum equals 15.0 cm; verify each gap lies between 2.6 and 3.4 cm.

Task 2

In a tracing exercise, four gaps near the heel measure 1.5 cm, 1.8 cm, 2.1 cm, and 2.4 cm. The average is 1.95 cm. Using a hypothetical tolerance of plus or minus 0.3 cm, identify which gaps are outside the tolerance and suggest a correction.

Answer: Tolerance range: 1.65 cm to 2.25 cm. The 1.5 cm gap is below 1.65 cm and the 2.4 cm gap is above 2.25 cm. Correction: move the line bounding the 1.5 cm gap slightly to increase it toward 1.95 cm, and move the line bounding the 2.4 cm gap to decrease it toward 1.95 cm.

Reason: Calculate the lower and upper tolerance limits, compare each gap, then adjust the lines that create the out-of-range gaps.

Check: Recalculate the average after adjustment and confirm all gaps fall within 1.65 to 2.25 cm.

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Original tasks 3, 4 / complete keys

Task 3

A blank-frame drawing has eight cross-contour lines across a 20 cm shoe side, creating seven gaps. The total measured distance across the lines is 18.9 cm. Calculate the average gap. If one gap measures 3.5 cm and the hypothetical tolerance is plus or minus 0.5 cm, is that gap acceptable?

Answer: Average gap = 18.9 divided by 7 = 2.7 cm. Tolerance range: 2.2 cm to 3.2 cm. The 3.5 cm gap is above 3.2 cm, so it is not acceptable; reduce it by moving the adjacent line closer.

Reason: Divide total distance by number of gaps to find the average, then compare the specific gap to the tolerance range.

Check: Multiply the average by seven to confirm 18.9 cm, and recheck the adjusted gap against 2.2 to 3.2 cm.

Task 4

You draw a shoe with cross-contour lines starting at the sole edge. Three gaps near the toe are 1.2 cm, 1.4 cm, and 1.6 cm. The average is 1.4 cm. A classmate starts lines at the upper edge and gets gaps of 1.3 cm, 1.5 cm, and 1.5 cm, average 1.43 cm. Using a hypothetical tolerance of plus or minus 0.2 cm, are both sets consistent? Explain why both are valid alternatives.

Answer: First set tolerance: 1.2 to 1.6 cm; all gaps fall within, so consistent. Second set tolerance: 1.23 to 1.63 cm; all gaps fall within, so consistent. Both are valid because starting from either boundary is an accepted alternative when spacing and direction describe the form.

Reason: Calculate each average and tolerance range separately, compare gaps, then apply the convention that starting point may vary.

Check: Recompute each average from the listed gaps and confirm every gap lies within its own tolerance range.

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Source rubric / reflection

- [ ] Cross-contour lines cross the shoe's main axis at roughly a right angle.
- [ ] Lines follow the surface of the sole and upper, wrapping around volume.
- [ ] Spacing is even in flat areas and closer where the surface turns away.
- [ ] Spacing check is performed and recorded with consistent units.
- [ ] No shading, lacing detail, or design changes are included.
- [ ] Valid alternatives in starting point and line weight are accepted if form is described.

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