Basketball Cross-Contour Drawing: Wrapping Lines Around a Sphere

Original task 1 / independent drawing and calculation

Task 1

On a 12 cm circle, state the convention: even spacing of 1.5 cm everywhere, with curvature increasing only near the outer edge. Draw four cross-contour lines across the upper half, each crossing the vertical seam at an angle. Describe where curvature should be strongest.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 2 / independent drawing and calculation

Task 2

A drawing shows five cross-contour lines on a sphere. At the center, spacing is 1 cm; at mid-radius, 1.5 cm; near the edge, 2 cm. The stated convention is wider spacing near the center and closer spacing near the edge. Identify the mismatch and state one correction.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 3 / independent drawing and calculation

Task 3

Draw a sphere with one vertical seam and one horizontal seam. Add three cross-contour lines that wrap around the right side, crossing the vertical seam. State whether your lines use the example convention or an alternative, and give one reason your choice supports spherical volume.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 4 / independent drawing and calculation

Task 4

A student draws cross-contour lines that are all straight and parallel to the horizontal seam. They claim the lines show volume because they are evenly spaced. Evaluate the claim and give two specific fixes.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

Full drawing sheet / reusable blank workspace

Reusable full drawing sheet for Tasks 1 to 4. Print another copy when needed. Keep all original task measurements; if a task specifies larger paper, use that paper size.