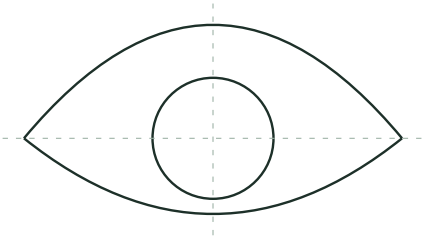
Eye Outline Drawing: Lid Contour and Iris Circle Guides

EXERCISE 1 / ANSWERS

Draw an eye outline on a 50 mm axis with an upper peak 15 mm above the axis, a lower trough 10 mm below, and an iris radius of 8 mm. Check that the iris stays inside the lids.



Width 50 mm / upper 15 / lower 10 / iris R 8

Corners at 0 mm and 50 mm; midpoint at 25 mm. Upper peak 15 mm above, lower trough 10 mm below. Iris diameter 16 mm, spanning 17 mm to 33 mm along the axis, leaving 17 mm to each corner. Opening height at center is 25 mm, so the 16 mm iris leaves 9 mm total clearance. The outline is closed and the iris is centered. At the center, upper clearance is 15 - 8 = 7 mm and lower clearance is 10 - 8 = 2 mm. Verify the full circle against both contours; the 9 mm total center clearance alone does not prove a fit.

Why: The axis midpoint fixes the iris center. The diameter and center heights give local clearance checks, while the full drawn contour determines whether the entire circle fits.

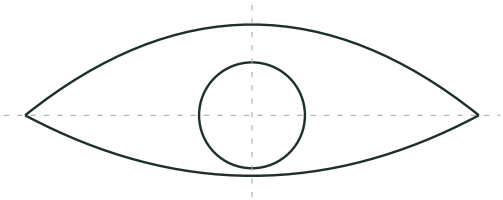
Check: Confirm equal center-to-corner distances and the stated dimensions. Check the separate upper and lower center clearances, then trace the whole circle to ensure it does not cross either lid.

Print at 100% Actual Size for 1:1 dimensions. These particular curves illustrate the checks; other contours require their own full-circle check. Lighter dashed lines are guides, not shading.

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EXERCISE 2 / ANSWERS

Draw a narrower eye on a 60 mm axis with an upper peak 12 mm above the axis, a lower trough 8 mm below, and an iris radius of 7 mm. Verify the iris placement.



Width 60 mm / upper 12 / lower 8 / iris R 7

Corners at 0 mm and 60 mm; midpoint at 30 mm. Upper peak 12 mm above, lower trough 8 mm below. Iris diameter 14 mm, spanning 23 mm to 37 mm, leaving 23 mm to each corner. Opening height at center is 20 mm, so the 14 mm iris leaves 6 mm total clearance. The outline is closed and the iris is centered. Upper and lower center clearances are 12 - 7 = 5 mm and 8 - 7 = 1 mm. Also check the entire circle against the drawn contours.

Why: A narrower eye uses flatter lid curves and a smaller iris. The same construction steps apply: corners, peaks, curves, then centered circle.

Check: Confirm the lid curves meet at the corners and that the iris circle does not cross either lid. Check equal side clearances.

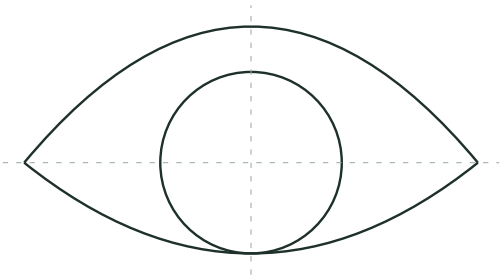
Print at 100% Actual Size for 1:1 dimensions. These particular curves illustrate the checks; other contours require their own full-circle check. Lighter dashed lines are guides, not shading.

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EXERCISE 3 / ANSWERS

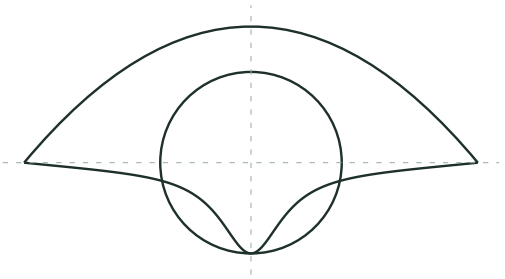
An outline has a 60 mm axis, an upper peak 18 mm above, a lower trough 12 mm below, and an iris centered on the axis with radius 12 mm. Do these dimensions alone prove that the iris does not fit? Give the center clearances and explain how to check a fit. If your drawn circle crosses a lid, give one possible adjustment and recheck it.

Fits: contact permitted



Width 60 mm / upper 18 / lower 12 / iris R 12

Same dimensions: crossing



Width 60 mm / upper 18 / lower 12 / iris R 12

No. The diameter is 24 mm and the center opening height is 30 mm, so total center clearance is 6 mm. The upper center clearance is 18 - 12 = 6 mm and the lower is 12 - 12 = 0 mm, meaning contact at the lower trough. Contact is allowed in this simplified convention. Fit elsewhere depends on the full lid curves, so inspect the entire circle rather than declaring failure from these dimensions alone. If a crossing occurs, one possible adjustment is radius 10 mm: its center clearances become 8 mm and 2 mm. Recheck both full contours after the adjustment; a smaller radius is not a substitute for that check.

Why: Central height and diameter describe only local clearance. Different smooth curves through the same corners and peaks can leave different room away from the center. The given measurements therefore do not force a failed fit.

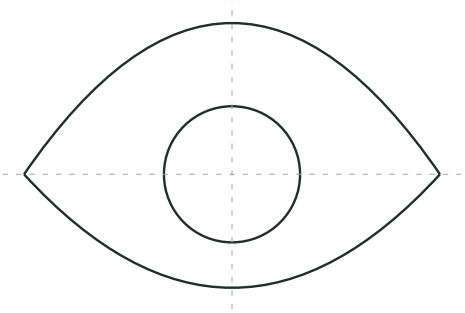
Check: Recompute 18 + 12 - 24 = 6, 18 - 12 = 6, and 12 - 12 = 0. Inspect the complete circle against each actual lid, allowing contact but no crossing. Make an adjustment only when a crossing is observed, then repeat the full-contour check.

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EXERCISE 4 / ANSWERS

Draw a rounder eye on a 55 mm axis with an upper peak 20 mm above the axis, a lower trough 15 mm below, and an iris radius of 9 mm. Check the outline and placement.



Width 55 mm / upper 20 / lower 15 / iris R 9

Corners at 0 mm and 55 mm; midpoint at 27.5 mm. Upper peak 20 mm above, lower trough 15 mm below. Iris diameter 18 mm, spanning 18.5 mm to 36.5 mm, leaving 18.5 mm to each corner. Opening height at center is 35 mm, so the 18 mm iris leaves 17 mm total clearance. The outline is closed and the iris is centered. Upper and lower center clearances are 20 - 9 = 11 mm and 15 - 9 = 6 mm; inspect the full circle to check the rest of the contours.

Why: A rounder eye uses higher peaks and a deeper lower trough. The iris remains centered on the midline, and the larger opening allows a slightly larger iris.

Check: Verify closed corners, midpoint placement and equal side clearances. Recompute the upper and lower center clearances separately, then confirm the entire circle does not cross either lid.

Print at 100% Actual Size for 1:1 dimensions. These particular curves illustrate the checks; other contours require their own full-circle check. Lighter dashed lines are guides, not shading.