Drawing Practice: Funnel Nose Type with Construction Variations

Ordinary topic reference / separately checked pixels



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Original worked example / unchanged complete key

Prompt: In a 12 cm by 12 cm box with origin at the top-left, x measured right and y downward, construct a front-view funnel nose. Put the center line at x=6 cm, tip-center guide and circle center at y=6 cm, wing-base guide at y=7.5 cm, and tip-circle diameter at 2 cm. Start mirrored lower nostril hooks at the lower circle intersections and extend them about 1 cm beyond the circle's sides. State the construction and a check.

Answer: Draw the center line at x=6 cm, tip-center guide y=6 cm, and wing-base guide y=7.5 cm. Place the 2 cm circle at (6,6), so radius=1 cm and bottom edge y=7 cm. At y=6.6, the lower points are 0.6 cm below the center; $dx=\sqrt{(1^2-0.6^2)}=0.8$ cm, giving x=5.2 and 6.8 cm. Start mirrored hooks there and curve outward and down to y=7.5 cm, ending about 1 cm beyond the tip circle's sides. Check that both starts are 0.8 cm from x=6 and lie at the same y.

Reason: With y increasing downward, the lower circle intersections have y greater than the center. The circle equation gives dx=0.8 cm for a 0.6 cm vertical offset and 1 cm radius, so the mirrored starts are at $x=6\pm0.8$.

Check: Check the 2 cm diameter and 1 cm radius. Confirm the lower intersections are (5.2,6.6) and (6.8,6.6), then verify both hooks descend to y=7.5 and mirror about x=6.