Chameleon Eye Drawing: Cone Turret, Ringed Lid, Radial Pupil

Original tasks 1, 2, 3, 4 / complete keys

Task 1

Draw a front-view eye with a 50 mm lid and two rings at 12 mm and 24 mm from center. State the ring gaps.

Answer: Gaps are 12 mm and 12 mm, with 1 mm remaining to the 25 mm outer edge.

Reason: The lid radius is 25 mm. Rings at 12 mm and 24 mm leave gaps of 12 mm, 12 mm, and 1 mm.

Check: Measure each gap with a ruler and confirm they match the stated values within 1 mm.

Task 2

Draw a side-view eye with a 60 mm wide by 40 mm tall lid ellipse and three nested rings. Describe how the turret projects.

Answer: The turret projects outward from the lid center, with its tip ellipse shifted toward the facing edge.

Reason: In side view the lid compresses vertically, so the turret appears to rise from the ellipse center toward the visible edge.

Check: Confirm all rings share one tilt angle and the turret tip stays inside the outer ellipse.

Task 3

Place a 6 mm pupil on a 10 mm tip ellipse. How much clearance remains on each side if centered?

Answer: 2 mm clearance on each side.

Reason: 10 mm minus 6 mm equals 4 mm total clearance, split evenly as 2 mm per side.

Check: Measure the pupil and tip widths and subtract; confirm the difference is 4 mm.

Task 4

Draw both views on one plate with labels. Explain one valid alternative ring count and why it still works.

Answer: Using four rings instead of three is valid if the rings stay concentric and do not cross the turret.

Reason: The convention allows three to five rings; the structure remains readable as long as spacing is even and the turret base is clear.

Check: Count rings, check concentricity, and verify no ring crosses the turret side lines.

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Source rubric / reflection

- [ ] Turret reads as a raised cone with a visible tip ellipse.
- [ ] Lid rings are concentric and do not cross the turret side lines.
- [ ] Pupil sits on the turret tip along the radial line.
- [ ] Front and side views share a consistent structure and scale.
- [ ] Labels are legible and use consistent units.
- [ ] Valid alternatives are accepted if the structure remains clear and checkable.

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