Draw a Portal Ring with Glow Shading: Easy Step-by-Step Guide

Original tasks 1, 2, 3 / complete keys

Task 1

A portal ring has an outer ellipse with a major axis of 10 cm and a minor axis of 6 cm. The ring band is 1 cm wide. What are the inner ellipse axes?

Answer: Major axis 8 cm, minor axis 4 cm.

Reason: The band reduces each axis by twice the band width: 10 minus 2 equals 8; 6 minus 2 equals 4.

Check: Measure the band at left, right, top, and bottom; each should be 1 cm.

Task 2

Describe where to place the brightest highlight on a portal ring whose glow is strongest at the lower-left inner rim.

Answer: Place the brightest highlight on the inner ring edge at the lower-left, fading along the curve away from that point.

Reason: The highlight should sit beside the brightest glow zone so light and reflection agree.

Check: Squint at the drawing; the brightest line should be next to the brightest glow area.

Task 3

A student draws a portal with a bright inner rim, a mid glow, and a center that is as bright as the rim. What is wrong and how to fix it?

Answer: The center should be dark to create depth. Darken the center and keep the bright zone at the inner rim.

Reason: Three zones require a dark center; equal brightness removes the sense of an opening.

Check: Compare the center tone to the inner rim tone; the center should be visibly darker.

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Original tasks 4 / complete keys

Task 4

Draw the same portal at low tilt and high tilt. The low-tilt outer ellipse has a major axis of 12 cm and a minor axis of 4 cm. The high-tilt version has a minor axis of 8 cm. If the band is 1 cm, list the inner axes for both.

Answer: Low tilt: 10 cm by 2 cm. The high-tilt inner minor axis is 6 cm. If the same portal retains the stated 12 cm major axis in both sketches, its high-tilt inner major axis is 10 cm, giving 10 cm by 6 cm. Without that fixed-major-axis convention, the high-tilt inner major axis is not independently specified by the prompt.

Reason: For the four-point band convention, subtract twice the 1 cm band from each specified outer axis: 12 - 2 = 10, 4 - 2 = 2, and 8 - 2 = 6. The high-tilt major result 10 cm is conditional on retaining the supplied 12 cm major axis for the same portal; a minor-axis value alone cannot determine an unspecified major axis.

Check: Check the 1 cm band at the left, right, top and bottom of each drawing. Record whether the 12 cm major axis was held fixed before using the conditional 10 cm high-tilt inner major result; otherwise leave that major result unspecified.

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Source rubric / reflection

- [ ] The ring is drawn as an ellipse with a consistent band width at four check points.
- [ ] The inner and outer ellipses share a center and axes.
- [ ] The glow uses three zones: bright inner rim, mid glow, dark center.
- [ ] The glow stays inside the ring opening and does not spill outside.
- [ ] A thin highlight sits on the inner ring edge beside the brightest glow zone and fades along the curve.
- [ ] The outer ring edge remains darker than the inner rim.
- [ ] Valid alternatives are accepted if the glow reads as coming from inside and the band width is even.

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