Negative-Space Planet Silhouettes: Drawing by Shading the Surround

Original tasks 1, 2 / independent work

Task 1

An unringed planet has a radius of 25 mm. You add one moon whose center is 40 mm from the planet center and whose radius is 5 mm. What is the gap between the planet limb and the moon limb?

Task 2

A ringed planet has a radius of 30 mm. The inner ring edge is 3 mm from the limb, and the ring band is 10 mm wide. A moon sits 5 mm outside the outer ring edge. What is the moon's minimum distance from the planet center if the moon radius is 4 mm?

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Original tasks 3, 4 / independent work

Task 3

You are drawing a ringed planet with a radius of 18 mm. You want the outer ring edge at 28 mm from the center and a gap of 2 mm between the planet limb and the inner ring edge. What is the ring band width?

Task 4

A planet has a radius of 22 mm. You draw two moons: moon A with radius 3 mm at 35 mm from the planet center, and moon B with radius 4 mm at 45 mm from the planet center. What are the gaps between the planet limb and each moon's near limb, and which moon is closer to the planet?