How to Draw a Starfish with Five-Fold Radial Symmetry

Original tasks 1, 2 / independent work

Task 1

A starfish drawing has five radial lines. The angle between the first and second line is 70 degrees, between the second and third is 74 degrees, and the remaining three angles are 72 degrees each. Does this arrangement have equal five-fold spacing? Explain.

Task 2

You are drawing a starfish with a hypothetical arm length of 7 cm and a central disk radius of 1 cm. You mark tip points at 7 cm from the center along each radial line. What is the distance from the center to the base of each arm if the base is at the edge of the central disk?

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Original tasks 3, 4 / independent work

Task 3

A student draws a starfish with five arms, but one arm is 9 cm long while the other four are 7 cm long. The angles between arms are all 72 degrees. Is the drawing pentaradially symmetric? Explain.

Task 4

You have a symmetry-check overlay with five radial lines at 72-degree intervals. When you place it over your drawing, four arms align well but one arm is offset by about 5 degrees. What is a reasonable adjustment, and how would you check it?