06.4 - Log Spiral

Starting with the code provided in `log_spiral_login.py`, add turtle commands into the `main` function in the program to draw the logarithmic spiral shown below. In Cartesian coordinates, the spiral's path is given by

$$x = ae^{b\theta}\cos(\theta)$$

and

$$y = ae^{b\theta}\sin(\theta)$$

where $a = 4$, $b = 0.22$, and θ increases from $0°$. Note that in these equations, θ is in radians, and that the `sin` and `cos` functions in Python expect their argument to be in radians. It may be helpful to convert from degrees to radians using

$$\theta_{\text{radians}} = \theta_{\text{degrees}} * \frac{\pi}{180},$$

or by using the `radians` function from the standard library's `math` module. Save your program as `log_spiral_login.py`, where `login` is your Purdue login. Then submit it along with a screenshot showing your drawing.
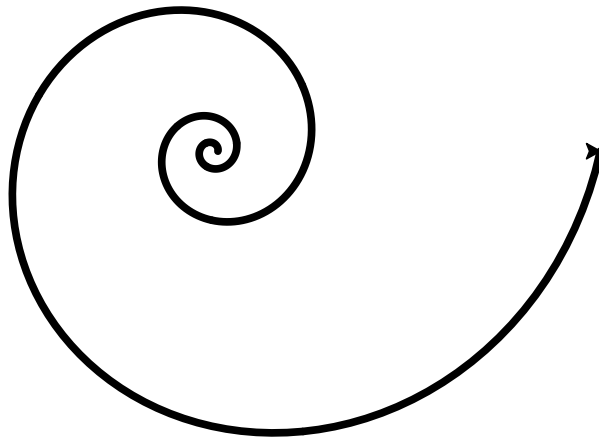

Figure 1: Logarithmic spiral pattern for Exercise 06.4.