

Exercise 95

Use the function you found in the previous exercise to find the total area burned after 5 minutes.

Solution

The area formula from the previous exercise is

$$A(r(t)) = 4\pi t^2 + 4\pi t + \pi.$$

Plug in $t = 5$.

$$\begin{aligned} A(r(5)) &= 4\pi(5)^2 + 4\pi(5) + \pi \\ &= 4\pi(25) + 20\pi + \pi \\ &= 100\pi + 20\pi + \pi \\ &= 121\pi \end{aligned}$$