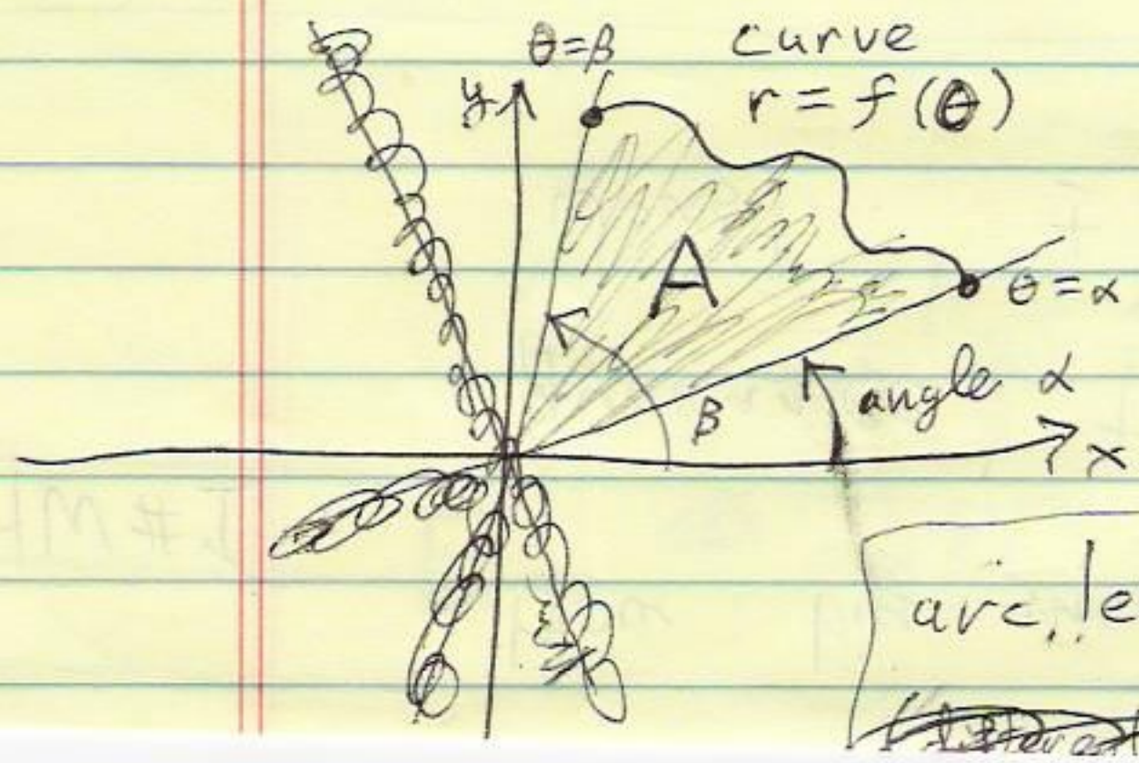
Optional reading:

Polar coordinates

The curve $r = f(\theta)$ (e.g., $r = \theta + \sin\theta$) is an equation that is just an abbreviation for a pair of parametric equations: $\begin{cases} x = f(t)\cos t \\ y = f(t)\sin t \end{cases}$ (e.g. $\begin{cases} x = (t+\sin t)\cos t \\ y = (t+\sin t)\sin t \end{cases}$).

So, everything you know about parametric curves can be applied to polar curves.

There are also special formulas that you can use as shortcuts for dealing with polar curves:



area: $A = \int_{\alpha}^{\beta} \frac{1}{2}(f(\theta))^2 \, d\theta$

length of curve $r=f(\theta)$ from $\theta=\alpha$ to $\theta=\beta$ is:

arc length: $s = \int_{\alpha}^{\beta} \sqrt{(f(\theta))^2 + (f'(\theta))^2} \, d\theta$