1. Find the area of the region that lies inside the first curve and outside the second curve.
   (a) \( r = 1 - \sin \theta, \ r = 1 \)
   (b) \( r = 1 + \cos \theta, \ r = 3 \cos \theta \)

2. Find the area of the region that lies inside both curves \( r = \cos \theta \) and \( r = 1 - \cos \theta \).

3. Evaluate the indefinite integral as an infinite series.
   (a) \( \int x \cos(x^3) \, dx \).
   (b) \( \int \frac{e^x - 1}{x} \, dx \).

4. Find the Maclaurin series for \( f \) by any method.
   (a) \( f(x) = \arctan(x^2) \)
   (b) \( f(x) = 10^x \)
   (c) \( f(x) = (1 - x)^{2/3} \)