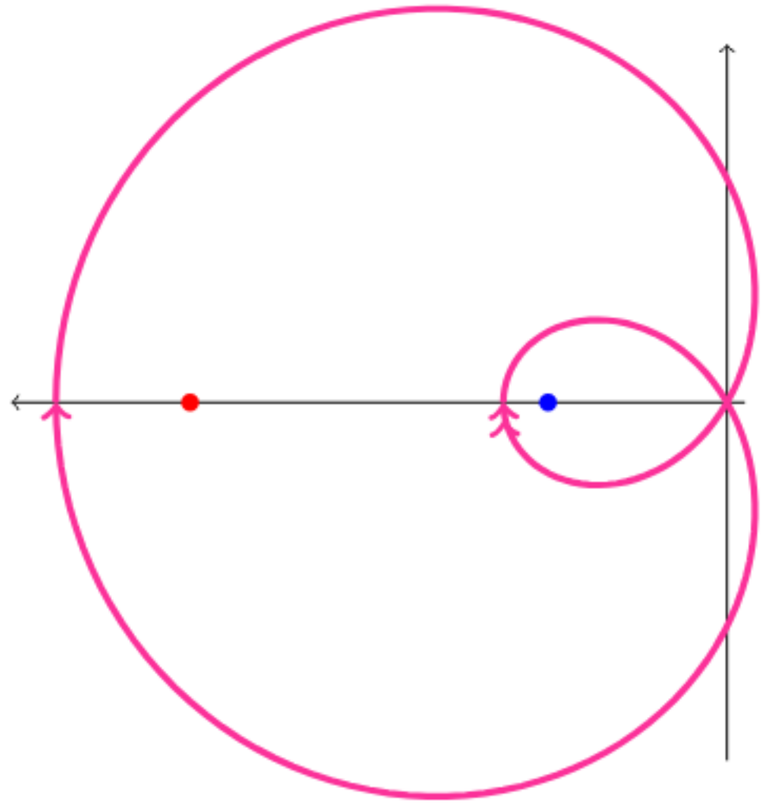
Main Sitting

Problem 1 (4.5 pts)**.** Using Cauchy's Integral Formula or Residue Theorem (your choice) calculate

$$I := \int_\Gamma \frac{z^2\,dz}{z^2+4z+3},$$

where Γ is a contour on the picture with the shown direction; poles are shown like colored dots.



Hint. Remember, this formula is applied only to simple counter-clockwise curves.

Solution. Observing that z^2+4z+3 has simple roots $z=-1$, $z=-3$ we