(a) Calculate the magnitude of the magnetic field created inside a toroid of $N$ turns (a doughnut-shaped coil of current-carrying wire) carrying current $I$ by using Ampere’s law with loop 1. Do not look at your book while doing this.

(b) Calculate $\oint B \cdot d\vec{s}$ for loop 1 if it has a radius less than $b$ or greater than $c$ (which is not how it is drawn).

(c) If $\oint B \cdot d\vec{s} = 0$ then what can you conclude about $\vec{B}$ around the loops you used in (b)?

(d) Calculate $\oint B \cdot d\vec{s}$ for loop 2 in the figure. Is $\vec{B} = \vec{0}$ outside of the toroid?