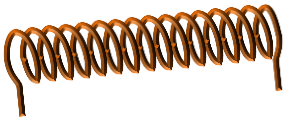
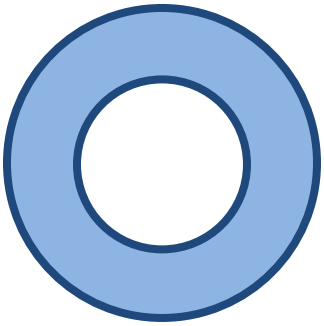
CONCEPT: MAGNETIC FIELD BY TOROIDAL SOLENOIDS

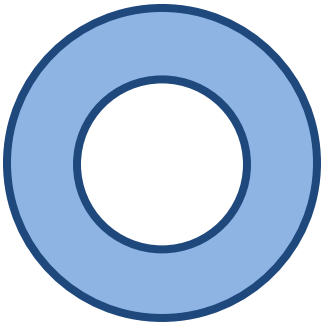
● Remember: Magnetic Field at the center of a LOOP → **B =**

- Magnetic Field at the center of a SOLENOID → **B =**

● Solenoids can be arranged in a doughnut shape to form Toroidal Solenoids aka "Toroids" →







→ **B =** _____

- NOTE _____ is back, AND _____ NOT _____!

- B exists between _____ and _____, zero outside.

- R is "mean radius" **=** _____

EXAMPLE: A 300-turn toroidal solenoid has inner and outer radii 12 and 16 cm, respectively. If 5 A of current runs through the wire, what is the magnitude of the magnetic field produced:

(a) at the center of the solenoid

(b) at 14 cm away from the center

(c) at 20 cm away from the center