A current, $I_1$, in Coil 1, creates a total magnetic flux, $\Phi_2$, threading Coil 2: $\Phi_2 = M_{21} I_1$
If instead, you put the same current around Coil 2, then the resulting flux threading Coil 1 is:

A) Something that you need to calculate for the particular geometry.
B) Is equal to the flux through Coil 2 only if the geometry is symmetrical.
C) Is always equal to the flux that $I_1$ caused in Coil 2.
D) Is nearly certain to differ from flux that was in Coil 2.

A long solenoid of cross sectional area, $A$, length, $l$, and number of turns, $N$, carrying current, $I$, creates a magnetic field, $B$, that is spatially uniform inside and zero outside the solenoid. It is given by:


$$\oint \vec{B} \cdot d\vec{l} = \mu_0 I_{thru}$$

A) $B = \mu_0 \frac{N^2}{l}$

B) $B = \mu_0 \frac{N^2}{l} I$

C) $B = \mu_0 \frac{N}{l} I$

D) $B = \mu_0 \frac{N}{l} AI$

A long solenoid of cross sectional area, $A$, length, $l$, and number of turns, $N$, carrying current, $I$, creates a magnetic field, $B$, that is spatially uniform inside and zero outside the solenoid. The self inductance is:

$$B = \mu_0 \frac{N}{l} I$$

A) $L = \mu_0 \dfrac{N^2}{lA}$

B) $L = \mu_0 \dfrac{N}{l} A$

C) $L = \mu_0 \dfrac{N^2}{l^2} A$

D) $L = \mu_0 \dfrac{N^2}{l} A$