To find $B$ in the center of a coil of a solenoid not too close to the ends, use Eq. (19.5) (see p. 774-775 for details about solenoid).

\[ B_z = \mu_0 n I \]

(note that you need to find $n$ first: $n = \frac{N}{L}$)

\[ \Rightarrow B_z = \mu_0 \frac{N}{L} I \]

Plug in the numbers to get a numerical answer. (I did this in Maple, see next page)

\[ B = 10.47 \times 10^{-2} T \]
> restart;

# number of coils
> N:=500;

\[ N := 500 \]  \hspace{1cm} (1)

\[ Is := 5 \]

# current through the solenoid (Maple does not allow me to define it as "I" because there is already predefined "I" in it)
> Is:=5;

\[ Is := 5 \]  \hspace{1cm} (2)

# permeability of aluminium
> mu:=1.257*10^(-6);

\[ \mu := 0.00000125700000 \]  \hspace{1cm} (3)

# length of solenoid
> L:=30*10^(-2);

\[ L := \frac{3}{10} \]  \hspace{1cm} (4)

# equation for finding B field of solenoid
> B:=mu*(N/L)*Is;

\[ B := 0.01047500000 \]  \hspace{1cm} (5)