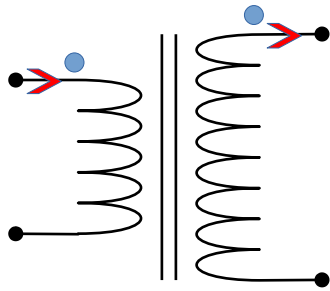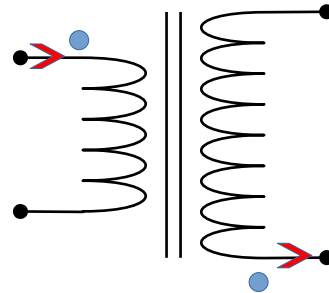# In phase or 180° out of phase ?

With the traditional way of representing a transformer, it's pretty easy to figure out the dot convention meaning.
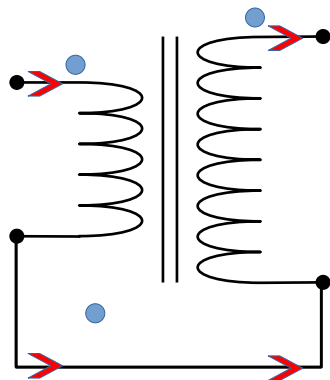
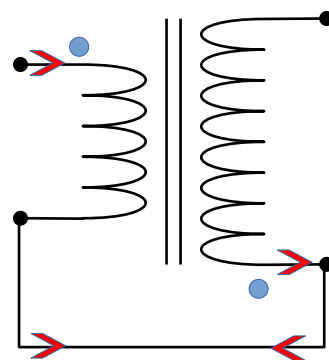

In phase   180° out ofphase

In case of inductors in series AND magnetically coupled, it is not always easy to figure out if the inductors are in phase or out of phase because they are not always represented side by side in the traditional way of transformers.

To help us, simply "connect" the bottom of a usual transformer to follow the current and figure out what would mean in series.

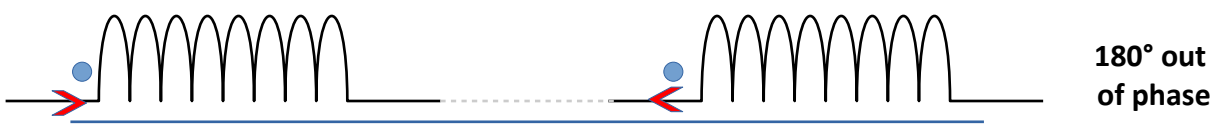In phase   180° out of phase

In phase : Currents goes in the same direction.
Out of phase: Currents goes in the opposite direction

So for 2 inductors that are magnetically coupled to each other and in series, if their input or output currents goes in the same direction, they are in phase and if their currents oppose to each other, they are 180° out of phase.C

In phase

180° out of phase

Christophe CAMPAIN