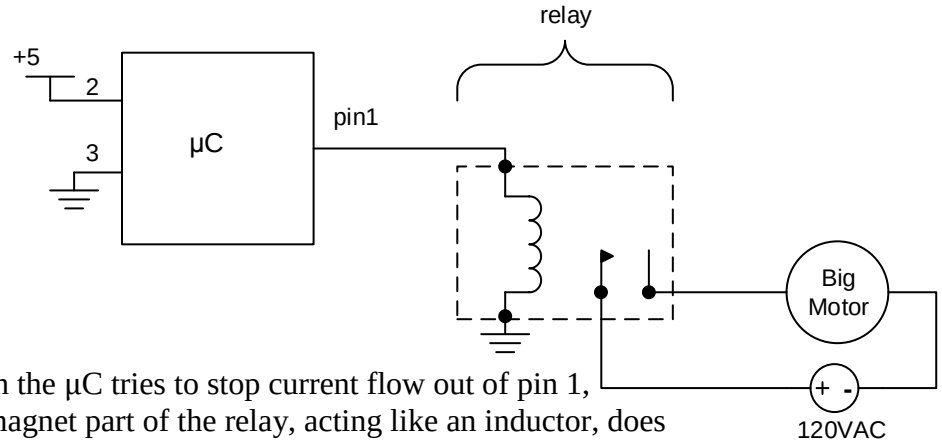
1. A relay is a momentary switch activated by an electromagnet (i.e., an inductor) allowing a small current low voltage source (like a microcontroller) to control heavy-duty sources (like an AC muter). In the circuit below, a microcontroller (abbrev. µC) turns on a relay by making pin 1= 5V at t=0 sec. At t=1 sec it turns the relay off by trying to stop current flow out of pin 1 (internally disconnecting it).



At t=1 when the µC tries to stop current flow out of pin 1, the electromagnet part of the relay, acting like an inductor, does

a) Nothing
b) Tries to make the voltage at pin large and positive
c) Tries to make the voltage at pin large and negative
d) Tries to make the voltage at pin large and equal to zero

2. Could the action described in the preceding paragraph damage the µC? If so, how could you use a diode to help? A diode,  , is a device that only allows current to flow in the direction of the arrow (i.e. it looks like a short to current flowing in the direction of the arrow, but an open current flowing in reverse).