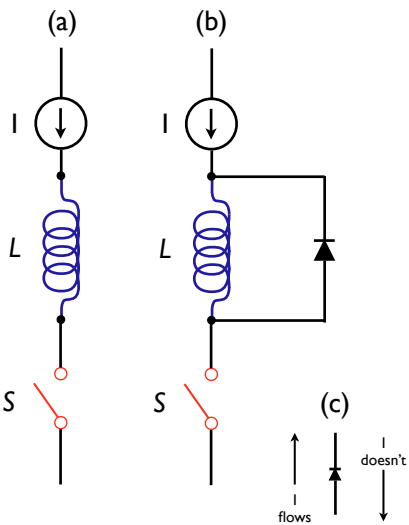


Quiz 8: ac circuits

1. A current source I is used to drive a large inductor (say, a wound wire electromagnet) as shown at right. Driving inductive loads can be problematic - what happens when you open the switch providing current to an inductor in circuit (a) Why does adding a diode across the inductor, circuit (b), add protection? Recall diodes only allow current through in one direction, as shown in (c).



2. Using capacitors, resistors, and inductors, sketch a circuit to split an audio signal composed of many frequencies in to a low frequency part and a high frequency part, for distribution to speakers. That is, filter the incoming signal into separate low frequencies and high frequencies to send to a woofer and tweeter, respectively. Such a circuit is known as an “audio crossover.” You do not need to specify the values of your components.