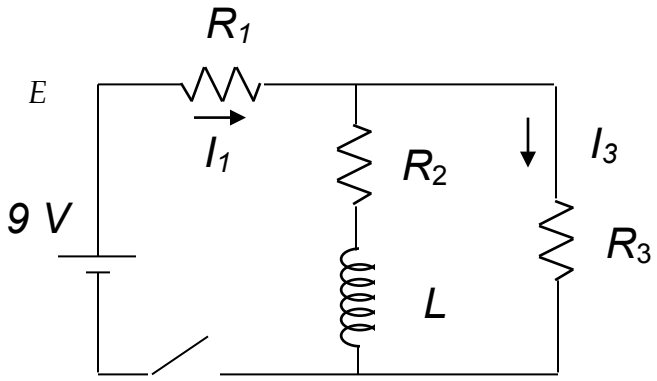
Name _____ Section _____ **P212: Quiz for Week 10**

The circuit shown below consists of a 9 V battery, three resistors, an ideal inductor and a switch. Assume that the switch has been open for a long time.



$R_1 = 30\ \Omega$
$R_2 = 100\ \Omega$
$R_3 = 150\ \Omega$
$L = 0.02$ H

1). The switch is now closed at $t = 0$. Immediately afterwards, what is the current I_3 flowing through resistor R_3? [5]

2). A very long time after the switch has been closed, what is the voltage drop across the inductor? [3]

3). A very long time after the switch has been closed, what is the current I_1 through R_1? [7]

4). The switch is now suddenly opened. How long after opening the switch does it take for the current through the inductor to reach 1/e of its value just before the switch is opened? [5]