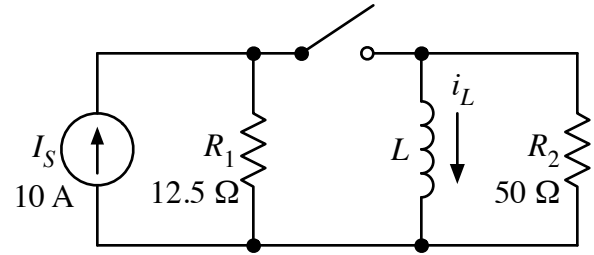


In the circuit at right, the switch alternately closes and opens, allowing the current in inductor to increase and decrease. The opened and closed times are long enough that the inductor current will fully reach the maximum and minimum values. (i.e. The times are much more than 5 times the corresponding time constants.) Do the following calculations.



1. Calculate  $L$  so that the inductor is storing 25 J when the maximum current is flowing.

$L =$  \_\_\_\_\_

2. Using  $L$  from above, find the expression for the “amping up” of the inductor after the switch closes.

$i_{Lup}(t) =$  \_\_\_\_\_

3. Find the expression for the decrease of the inductor current after the switch opens.

$i_{Ldown}(t) =$  \_\_\_\_\_

4. Calculate the amount of energy that is delivered by the source during the upward transient.

$E =$  \_\_\_\_\_

5. Calculate the amount of energy that is dissipated in resistors during the downward transient.

$E =$  \_\_\_\_\_