



# Unit 3 - Week 2

## Course outline

How to access the portal

### Week 1

### Week 2

- Lecture 7 : RC/RL circuits in time domain-1
- Lecture 8 : RC/RL circuits in time domain-2
- Lecture 9 : RC/RL circuits in time domain-3
- Lecture 10 : RC/RL circuits in time domain-4
- Lecture 11 : RC/RL circuits in time domain-5
- Lecture 12 : Simulation of RC circuit
- Week 2 Slides PDF
- Quiz : Assignment 2
- Assignment-2 Solutions
- Download Videos
- Weekly Feedback Form

### Week 3

### Week 4

### Week 5

### Week 6

### Week 7

### Week 8

### Week 9

### Week 10

### Week 11

### Week 12

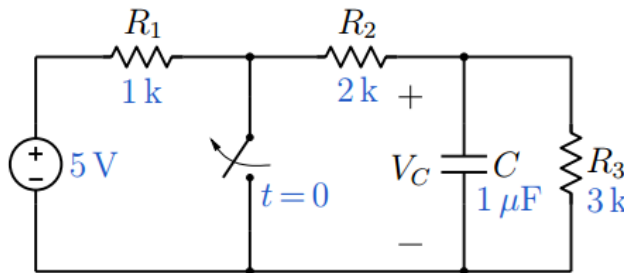
## Assignment 2

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2018-02-08, 23:59 IST

1 point

1) The switch in the following figure has been closed for a long time and opens at  $t = 0$ . What is the circuit time constant for  $t > 0$ ?



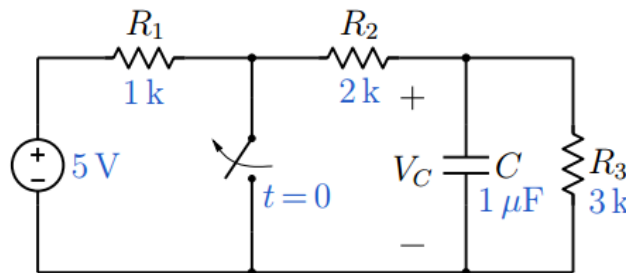
- 6msec
- 1.5msec
- 5msec
- 0.55msec

No, the answer is incorrect. Score: 0

Accepted Answers: 1.5msec

2) For the circuit of Q - 1, what is  $V_C$  as  $t \rightarrow \infty$  ?

1 point



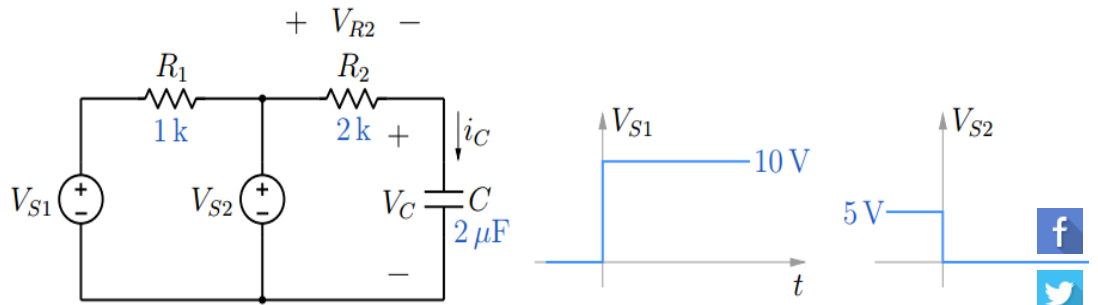
- 2.5V
- 1.8V
- 0.83V
- 3.75V

No, the answer is incorrect. Score: 0

Accepted Answers: 2.5V

3) Consider the circuit shown in the figure with input voltages  $V_{S1}$  and  $V_{S2}$ . What is the circuit time constant for  $t > 0$ ?

1 point



- 1.33msec
- 6msec
- 3msec
- 4msec

No, the answer is incorrect.

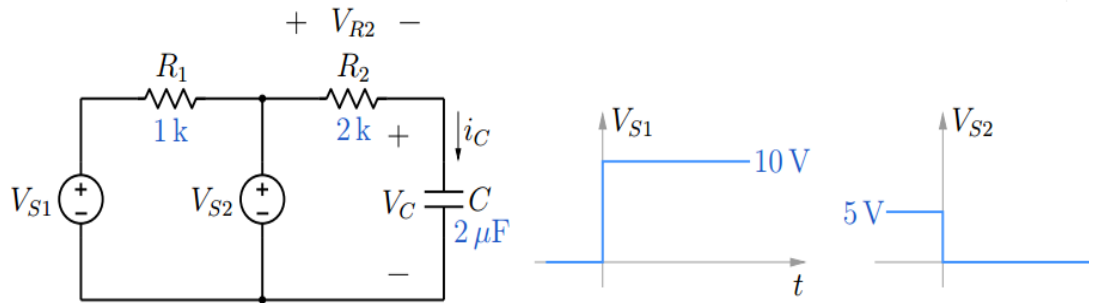
Score: 0

Accepted Answers:

4msec

4) In the circuit of Q - 3, what is  $V_C(0^-)$ ?

1 point



- 4.25V
- 5V
- 7.5V
- 3.33V

No, the answer is incorrect.

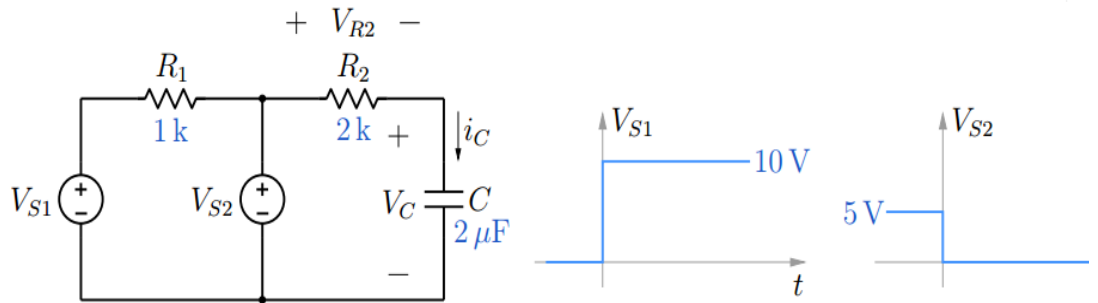
Score: 0

Accepted Answers:

5V

5) In the circuit of Q - 3, what is  $i_C(0^+)$ ?

1 point



- 3.33mA
- 1.67mA
- 2.5mA
- 2.5mA

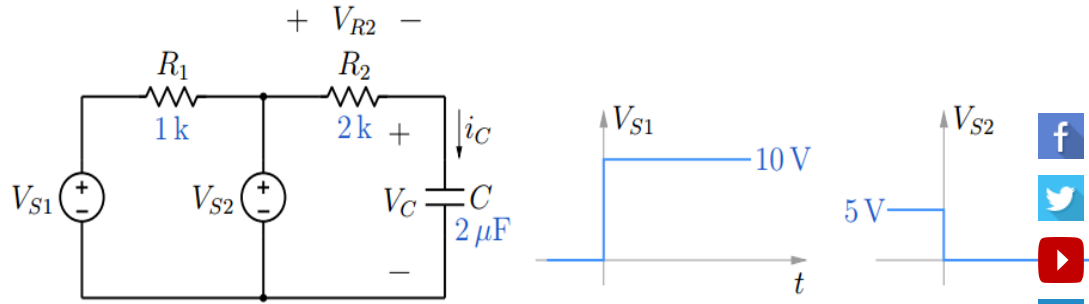
No, the answer is incorrect.

Score: 0

Accepted Answers:  
-2.5mA

6) In the circuit of Q - 3, let  $V_{R2} = Ae^{-t/\tau} + B$  for  $t > 0$ . The constants  $A$  and  $B$  (in Volts) are given by

1 point



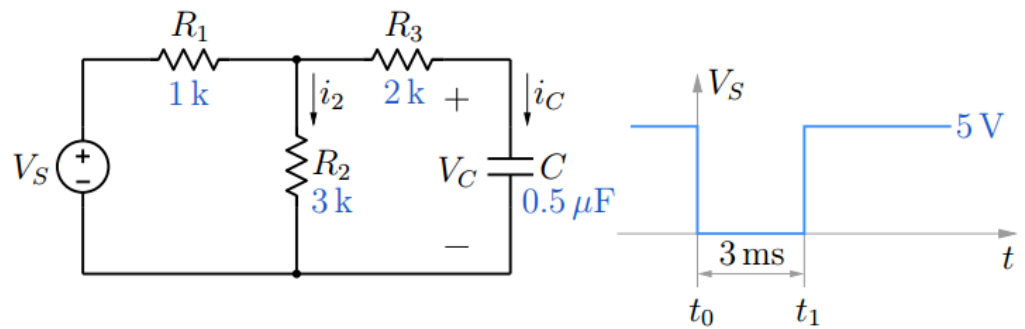
- $A = -5, B = 0$
- $A = -5, B = 5$
- $A = 10, B = 5$
- $A = 5, B = 10$

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
 $A = -5, B = 0$

7) Consider the RC circuit shown in the figure. What is the circuit time constant?

1 point



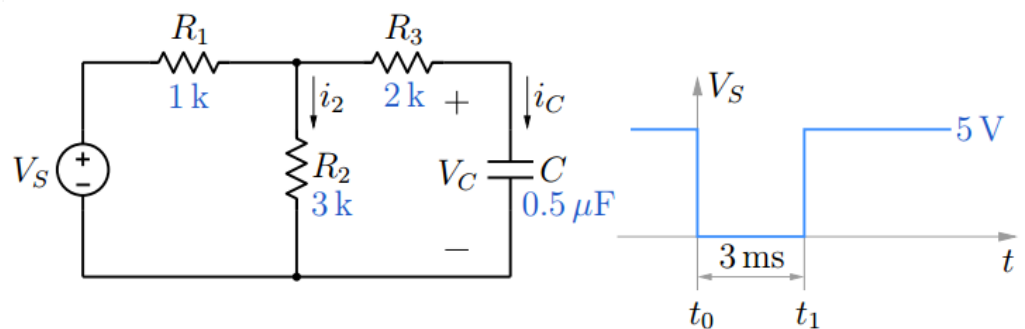
- 1.1msec
- 0.27msec
- 1.375msec
- 3msec

No, the answer is incorrect.  
Score: 0

Accepted Answers:  
1.375msec

8) In the circuit of Q - 7, what is the minimum value attained by  $V_C$ ?

1 point



- 1.31V
- 0.08V

0.85V

0.42V

No, the answer is incorrect.

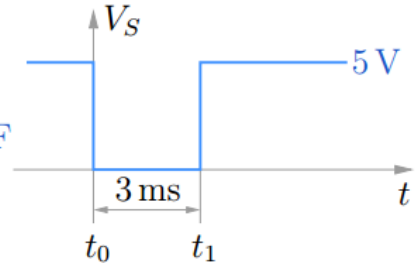
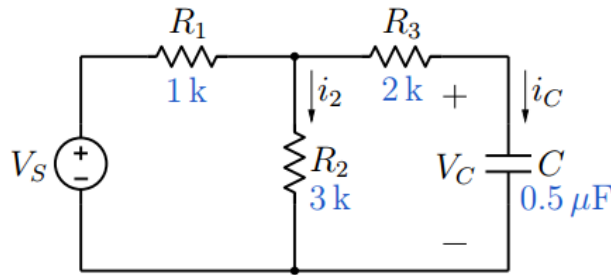
Score: 0

Accepted Answers:

0.42V

9) In the circuit of Q – 7, what is  $i_2(t_0^+)$ ?

1 p




0.18mA

0.34mA

0.59mA

0.81mA

No, the answer is incorrect.

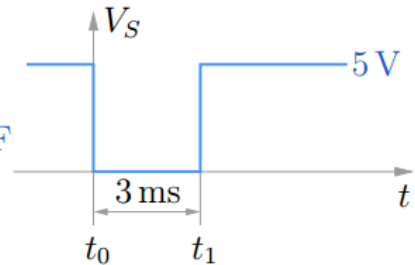
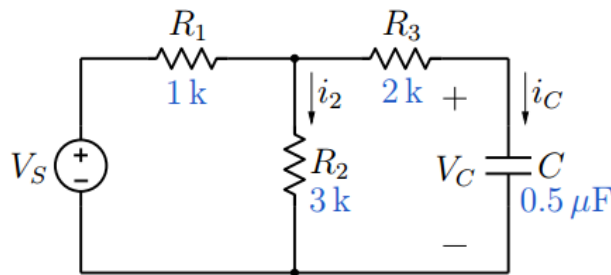
Score: 0

Accepted Answers:

0.34mA

10) In the circuit of Q – 7, what is  $i_2(t_1^-)$ ?

1 point




0.15mA

75 μA

38 μA

4.2 μA

No, the answer is incorrect.

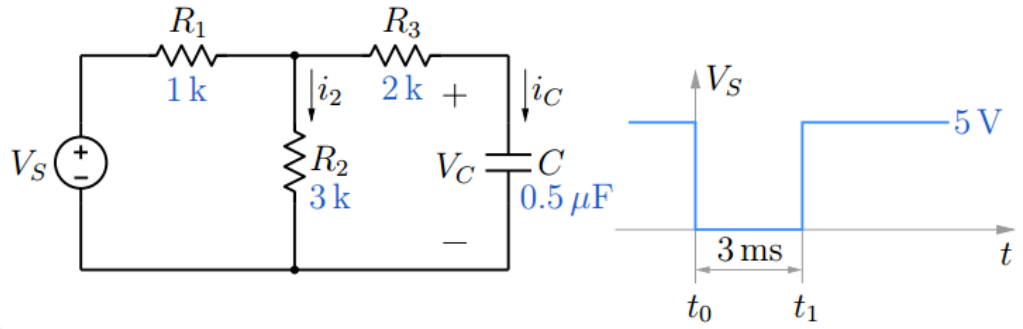
Score: 0

Accepted Answers:

38 μA

11) In the circuit of Q – 7, what is  $i_2(t_1^+)$ ?

1 point



- 0.95mA
- 1.43mA
- 0.62mA
- 1.88mA

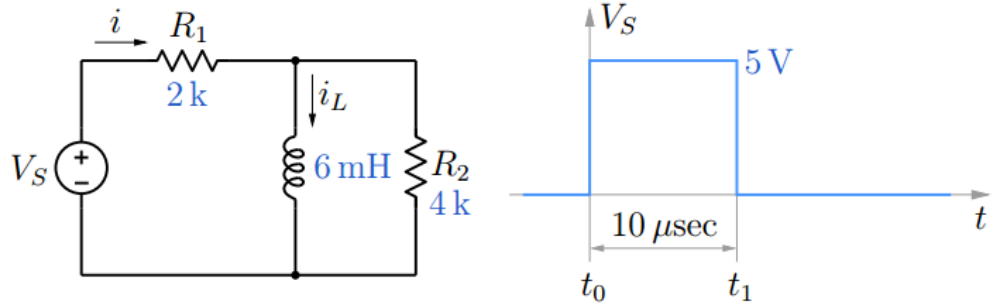
No, the answer is incorrect.

Score: 0

Accepted Answers:  
0.95mA

12) Consider the RL circuit shown in the figure. What is the circuit time constant?

1 point



- 1 μsec
- 6 μsec
- 3 μsec
- 4.5 μsec

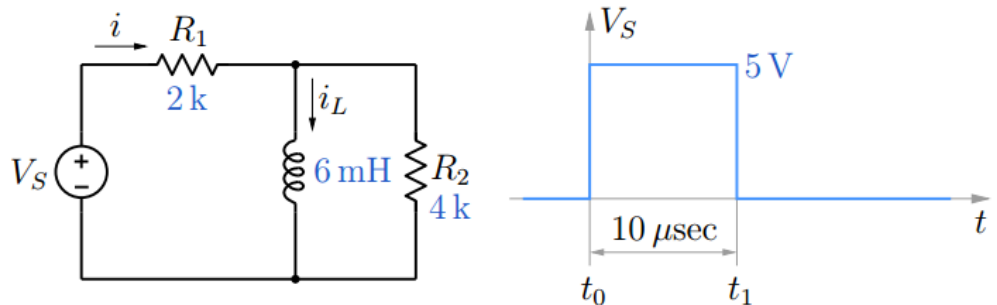
No, the answer is incorrect.

Score: 0

Accepted Answers:  
4.5 μsec

13) In the circuit of Q - 12, what is  $i(t_0^+)$ ?

1 point



- 0.22mA
- 0.83mA
- 1.4mA
- 3.75mA

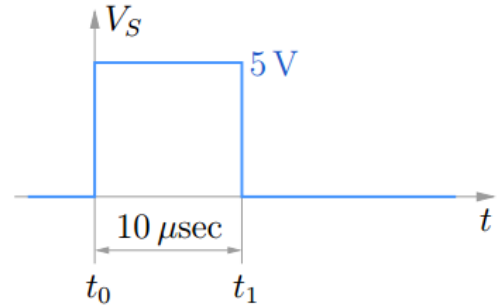
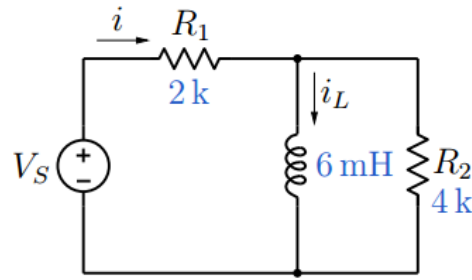
No, the answer is incorrect.

Score: 0

Accepted Answers:

0.83mA

14) In the circuit of Q – 12, what is  $i(t_1^-)$ ?



1 point

- 2.32mA
- 1.47mA
- 1.8mA
- 3.12mA

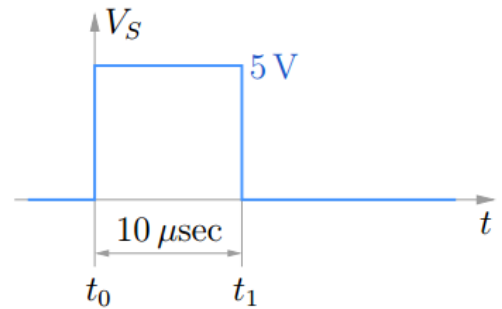
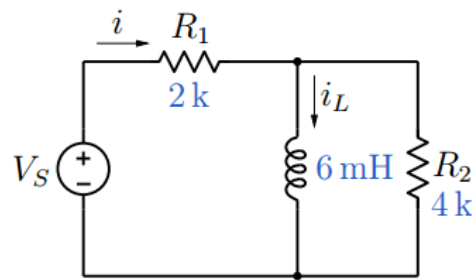
No, the answer is incorrect.

Score: 0

Accepted Answers:

2.32mA

15) In the circuit of Q – 12, what is  $i(t_1^+)$ ?



1 point

- 0.63mA
- 1.06mA
- 1.49mA
- 2.15mA

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.49mA

Previous Page

End





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