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# Unit 4 - Week 3

## Course outline

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- Lecture 14. Diode circuits-2
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- Weekly Feedback Form
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### Week 4

### Week 5

### Week 6

### Week 7

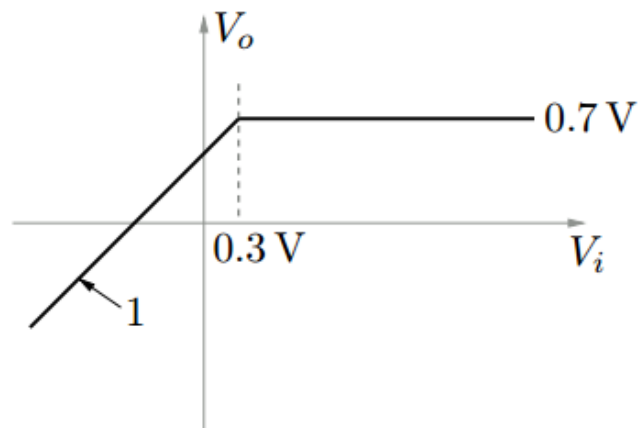
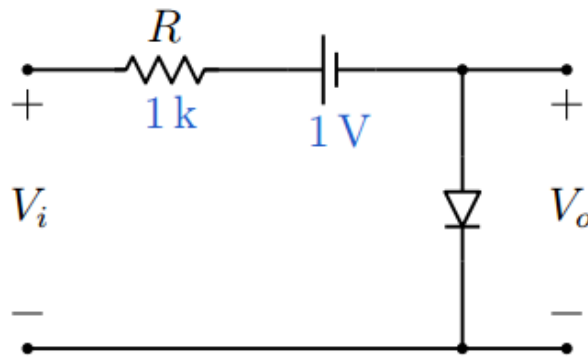
### Week 8

### Week 9

## Assignment 3

The due date for submitting this assignment has passed. **Due on 2018-02-14, 23:59 IST**. As per our records you have not submitted this assignment.

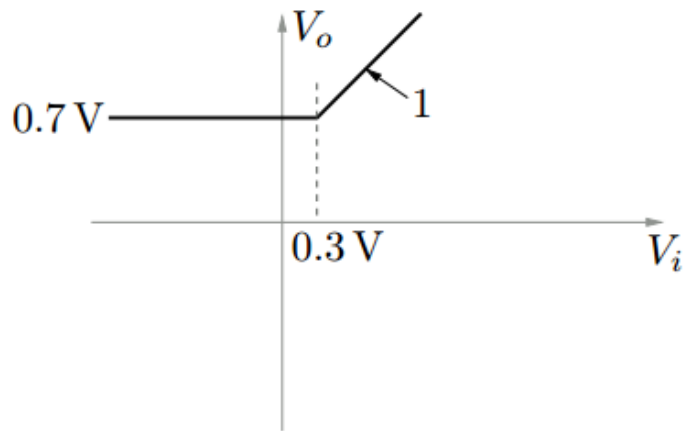
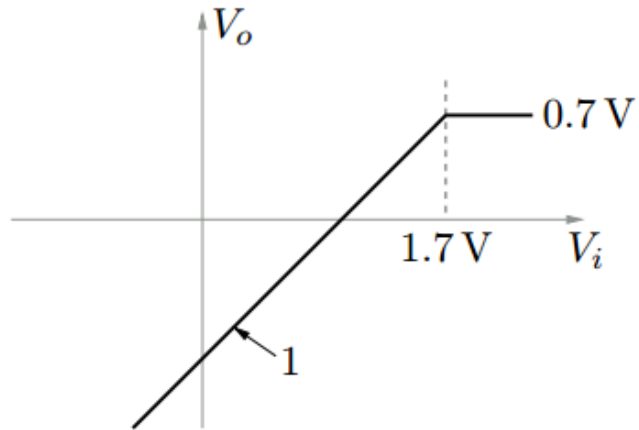
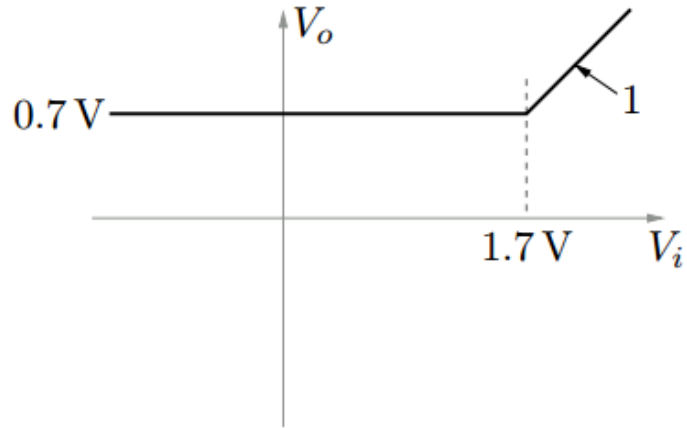
1) In the diode circuit shown in the figure, the diode has  $V_{on} = 0.7V$ . Which of the following 1 point graphs correctly describes the  $V_o - V_i$  relationship? (The slopes of the line segments are shown by arrows in the graphs.)



Week 10

Week 11

Week 12

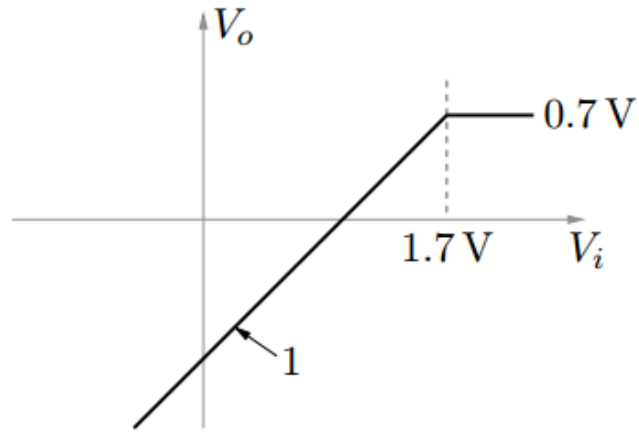


No, the answer is incorrect.

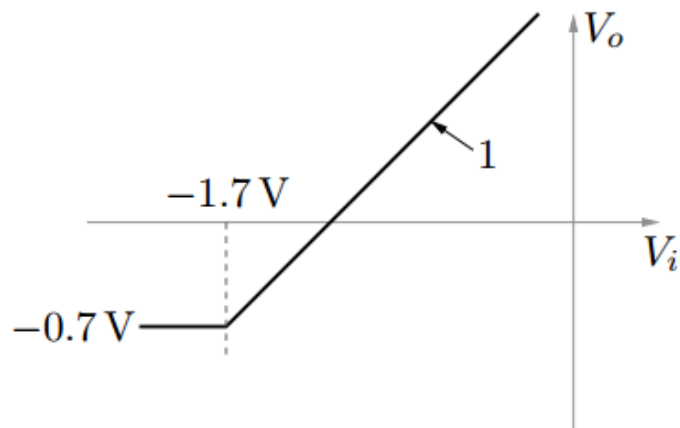
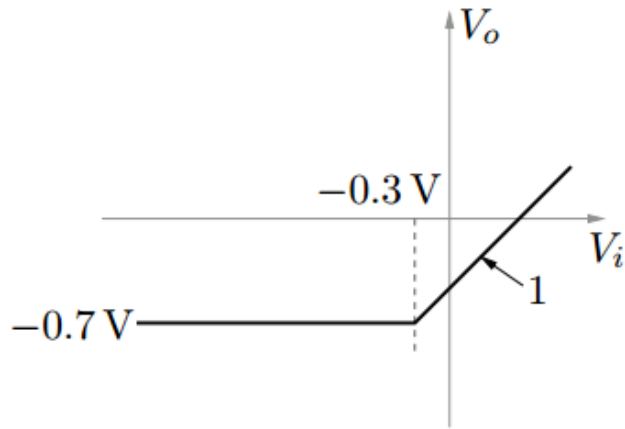
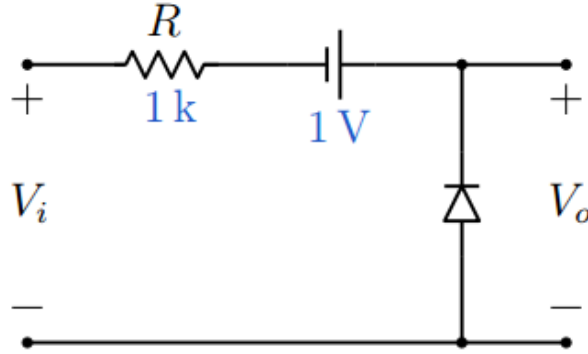
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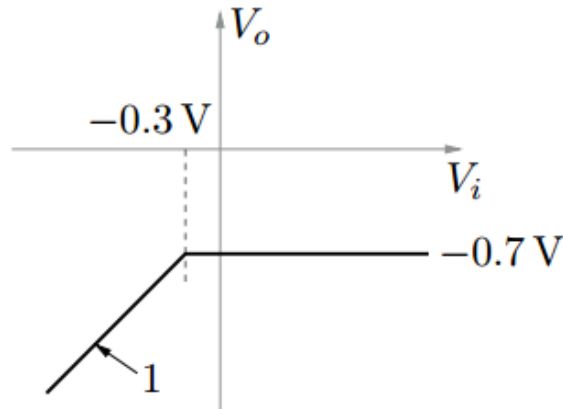
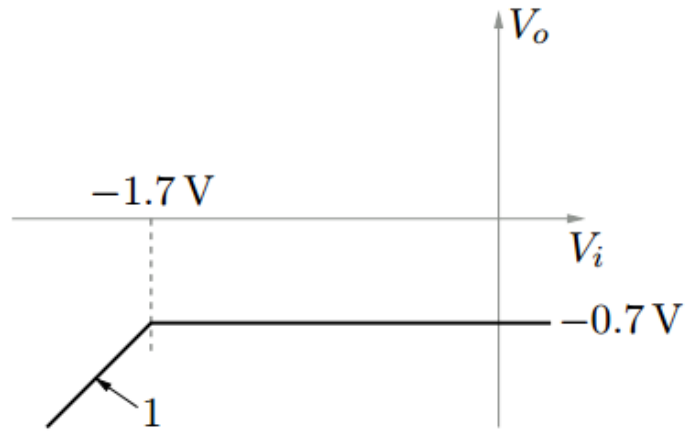
Accepted Answers:





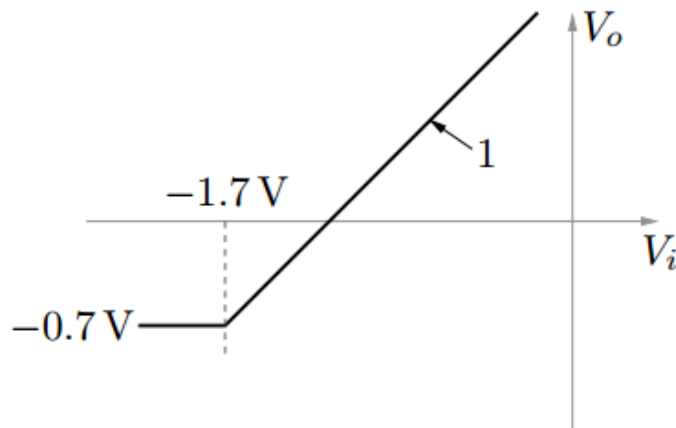
2) In the diode circuit shown in the figure, the diode has  $V_{on} = 0.7\text{ V}$ . Which of the following graphs correctly describes the  $V_o - V_i$  relationship? (The slopes of the line segments are shown by arrows in the graphs.)





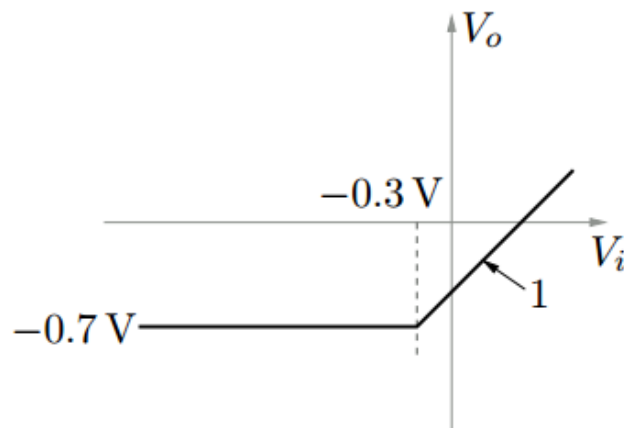
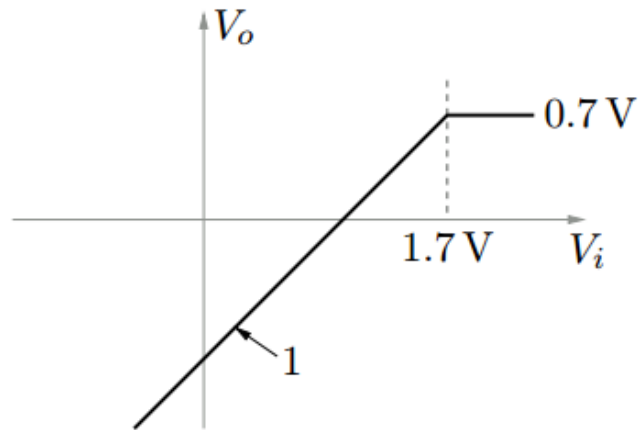
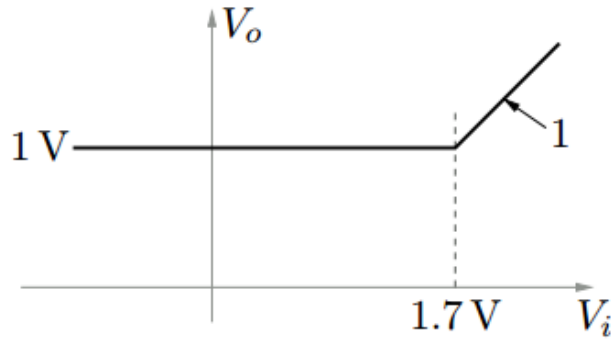
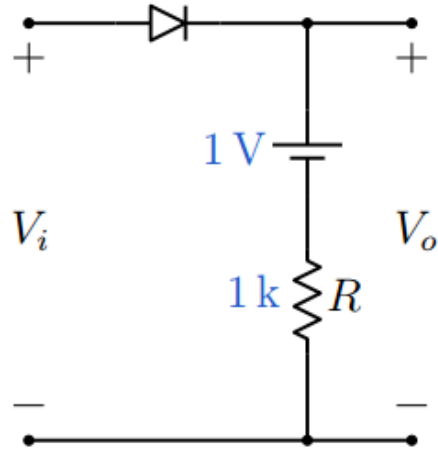
No, the answer is incorrect.  
Score: 0

Accepted Answers:



3) In the diode circuit shown in the figure, the diode has  $V_{on} = 0.7V$ . Which of the following **1 point** graphs correctly describes the  $V_o - V_i$  relationship? (The slopes of the line segments are shown by

arrows in the graphs.)

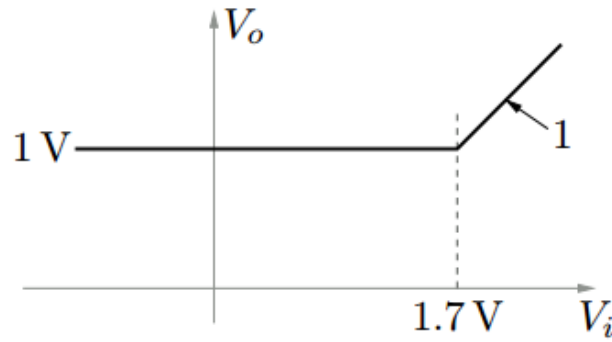


No, the answer is incorrect.

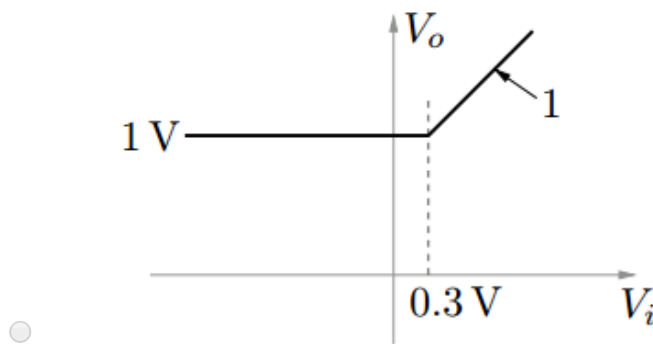
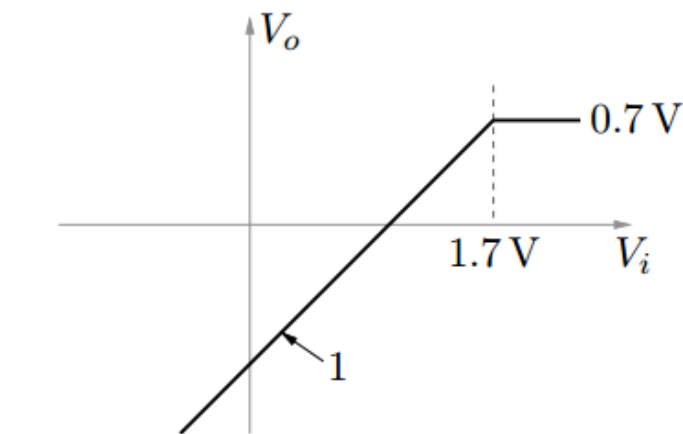
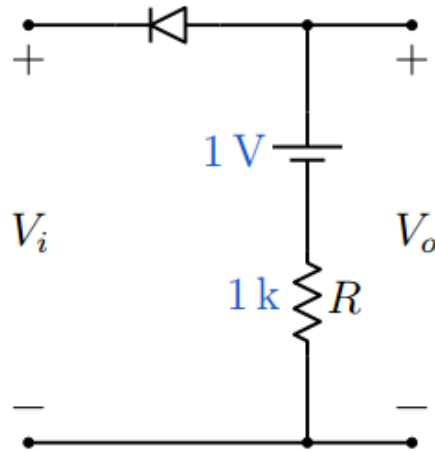
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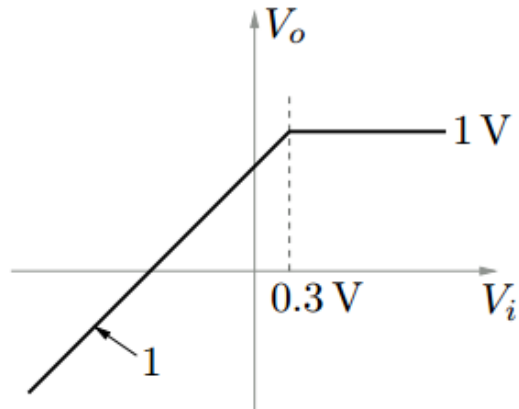
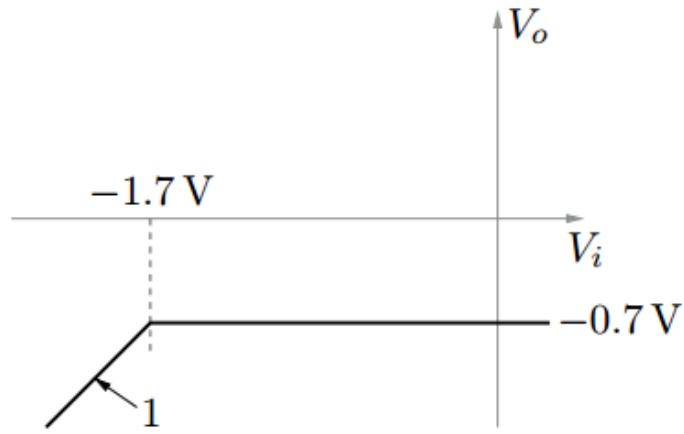
Accepted Answers:





4) In the diode circuit shown in the figure, the diode has  $V_{on} = 0.7V$ . Which of the following **1 point** graphs correctly describes the  $V_o - V_i$  relationship? (The slopes of the line segments are shown by arrows in the graphs.)

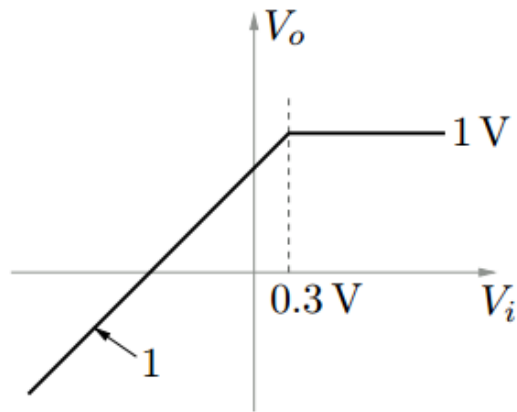




No, the answer is incorrect.

Score: 0

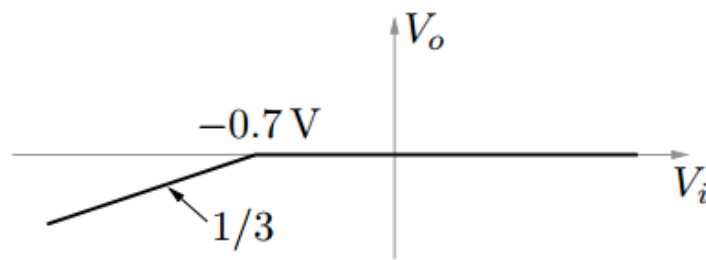
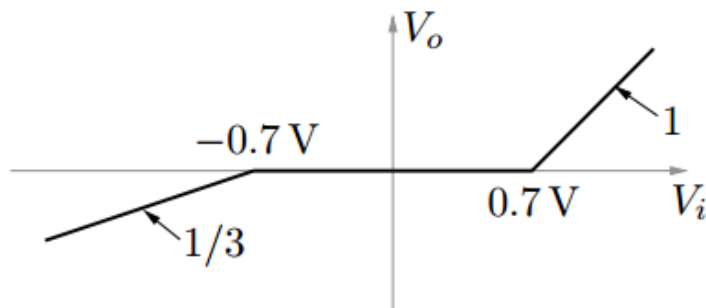
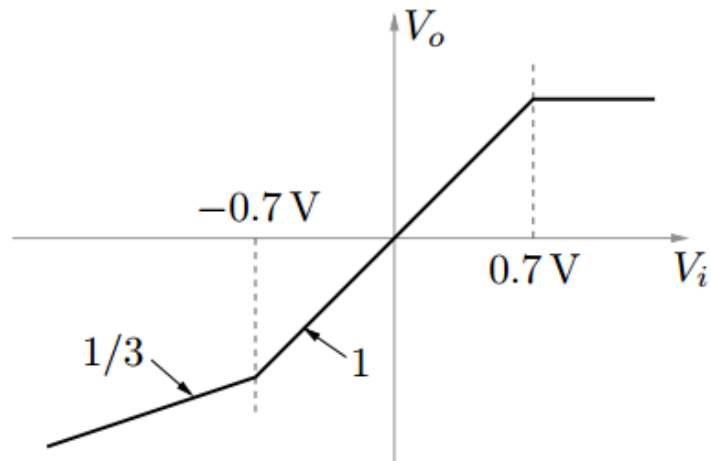
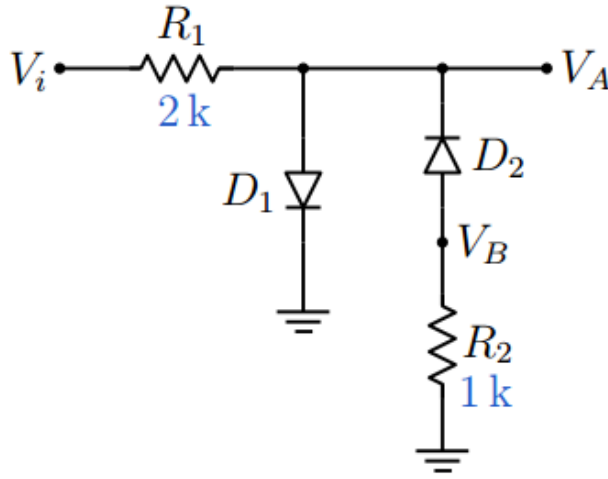
Accepted Answers:



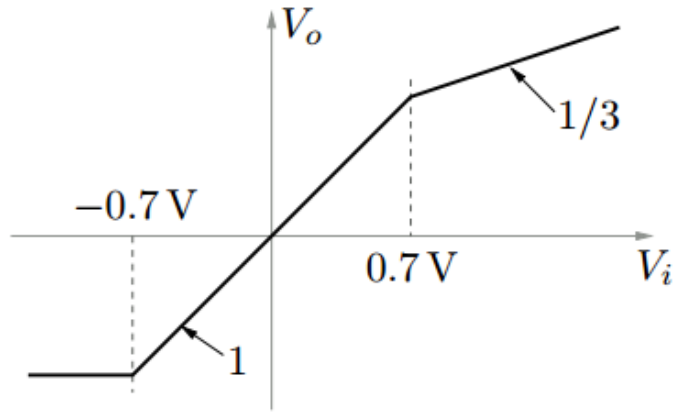
5) In the diode circuit shown in the figure, the diodes have  $V_{on} = 0.7V$ . Which of the following **1 point** graphs correctly describes the  $V_A - V_i$  relationship? (The slopes of the line segments are shown by



arrows in the graphs.)



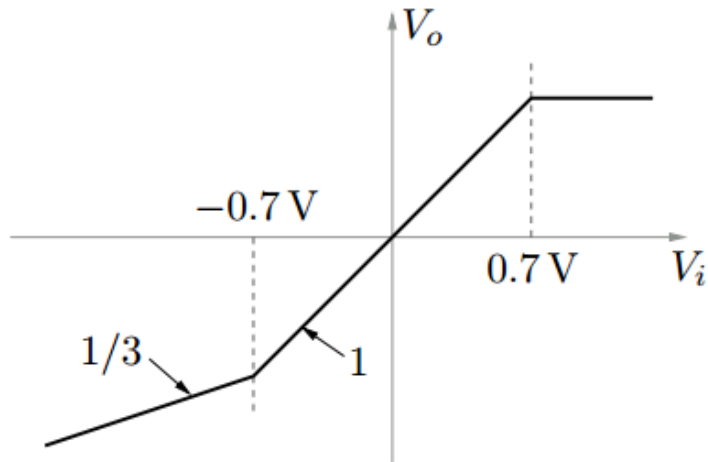




No, the answer is incorrect.

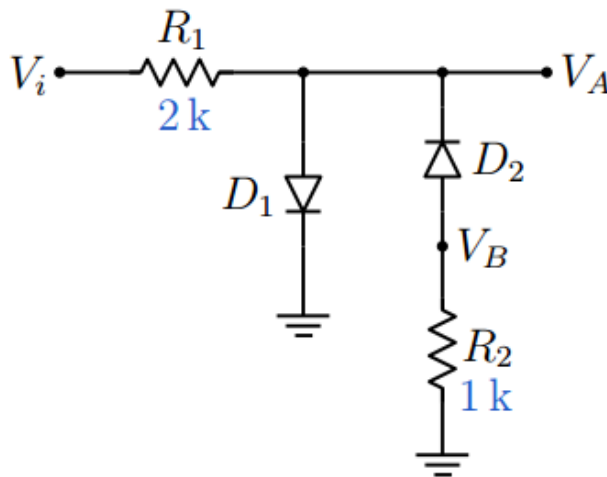
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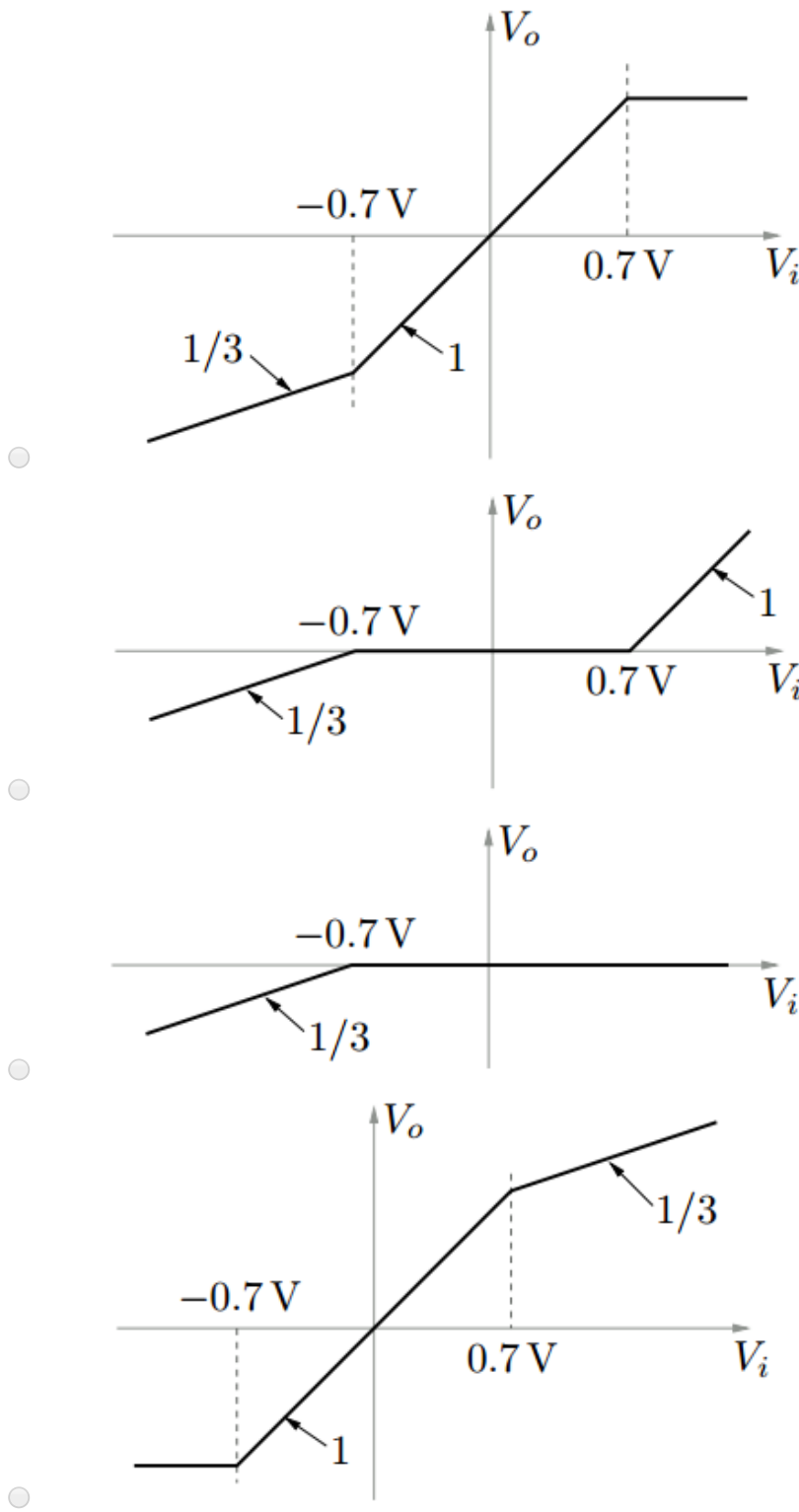
Accepted Answers:



6) In the circuit of Q – 5, which of the following graphs correctly describes the  $V_B - V_i$  relationship?

1 point

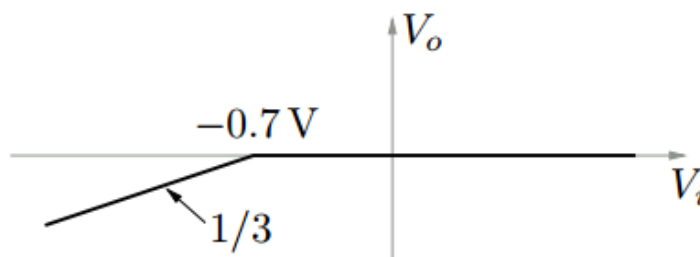




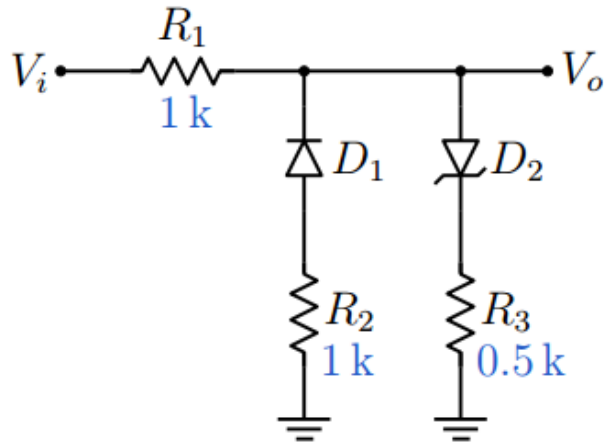
No, the answer is incorrect.

Score: 0

Accepted Answers:



7) In the circuit shown in the figure,  $V_{on} = 0.7V$  for both diodes, and  $V_Z = 3V$  for  $D_2$ . What **1 point** is  $\frac{dV_o}{dV_i}$  when only  $D_1$  conducts?



- 
- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{1}{2}$
- 
- $\frac{2}{3}$

No, the answer is incorrect.

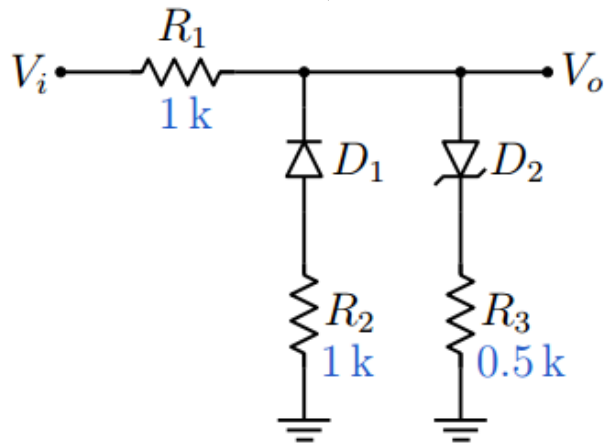
Score: 0

Accepted Answers:

$\frac{1}{2}$

8) In the circuit of Q – 7, what is  $\frac{dV_o}{dV_i}$  when  $D_2$  conducts in the forward direction?

1 point



- 
- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{1}{2}$
- 
- $\frac{2}{3}$

No, the answer is incorrect.

Score: 0

Accepted Answers:

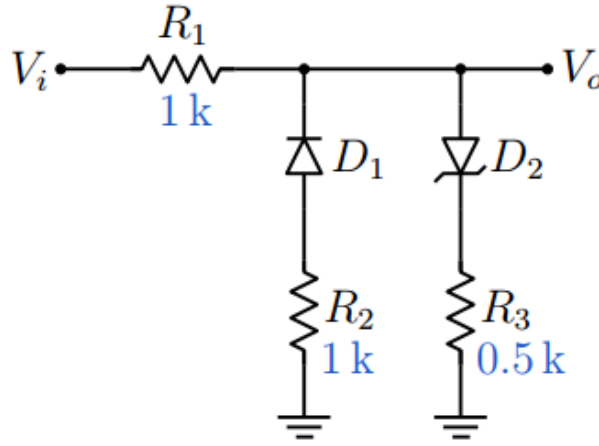
$\frac{1}{3}$

9)

1 point



In the circuit of  $Q - 7$ , what is  $\frac{dV_o}{dV_i}$  when  $D_2$  conducts in the reverse direction?



- $\frac{1}{4}$
- $\frac{1}{3}$
- $\frac{1}{2}$
- $\frac{2}{3}$

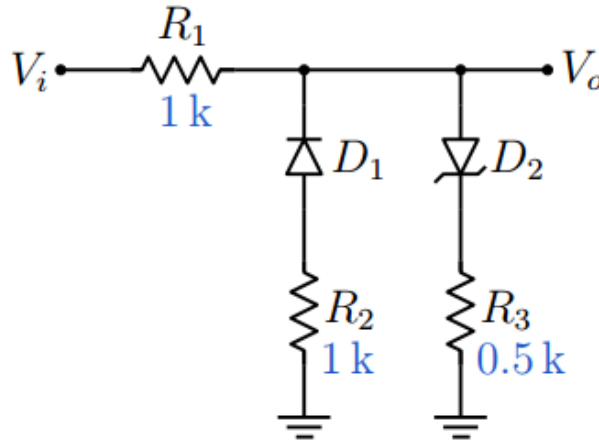
No, the answer is incorrect.

Score: 0

Accepted Answers:

$\frac{1}{4}$

10) In the circuit of  $Q - 7$ , what is  $V_i$  for which  $D_2$  starts conducting in the reverse direction? **1 point**



- $-4.2V$
- $-5.3V$
- $-3V$
- $-4.7V$

No, the answer is incorrect.

Score: 0

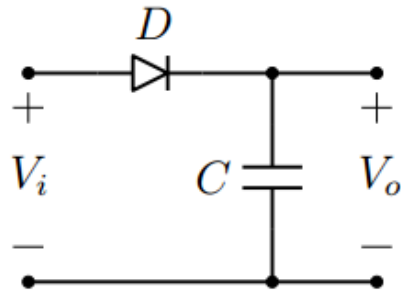
Accepted Answers:

$-5.3V$

11) An input voltage  $V_i(t) = V_1 + V_m \sin \omega t$  is applied to the circuit shown in the figure. If  $V_{on} = 0.7V$  for the diode,  $V_1 = -2V$ , and  $V_m = 4V$ , the output voltage  $V_o$  is

**1 point**





- sinusoidal, varying between  $-6.7V$  and  $1.3V$
- sinusoidal, varying between  $-5.3V$  and  $2.7V$
- constant, equal to  $1.3V$
- constant, equal to  $-6.7V$

No, the answer is incorrect.

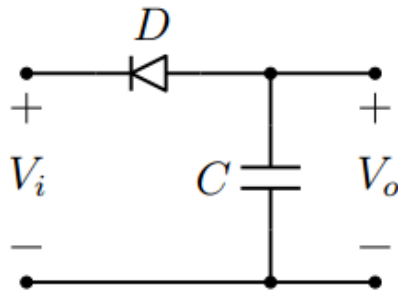
Score: 0

Accepted Answers:

constant, equal to  $1.3V$

12 An input voltage  $V_i(t) = V_1 + V_m \sin \omega t$  is applied to the circuit shown in the figure. If  $V_{on} = 0.7V$  for the diode,  $V_1 = -2V$ , and  $V_m = 4V$ , the output voltage  $V_o$  is

1 point



- sinusoidal, varying between  $-6.7V$  and  $1.3V$
- sinusoidal, varying between  $-5.3V$  and  $2.7V$
- constant, equal to  $2.7V$
- constant, equal to  $-5.3V$

No, the answer is incorrect.

Score: 0

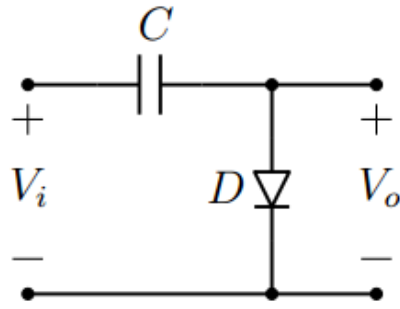
Accepted Answers:

constant, equal to  $-5.3V$

13 An input voltage  $V_i(t) = V_1 + V_m \sin \omega t$  is applied to the circuit shown in the figure. If  $V_{on} = 0.7V$  for the diode,  $V_1 = -2V$ , and  $V_m = 4V$ , the output voltage  $V_o$  is

1 point





- sinusoidal, varying between  $-7.3V$  and  $0.7V$
- sinusoidal, varying between  $-4.7V$  and  $3.3V$
- constant, equal to  $2.7V$
- constant, equal to  $-5.3V$

No, the answer is incorrect.

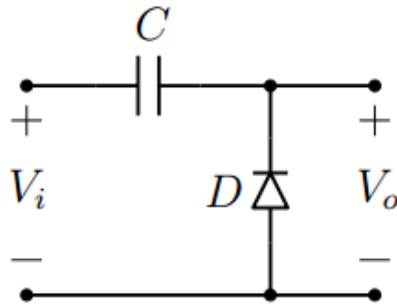
Score: 0

Accepted Answers:

sinusoidal, varying between  $-7.3V$  and  $0.7V$

14) An input voltage  $V_i(t) = V_1 + V_m \sin \omega t$  is applied to the circuit shown in the figure. If  $V_{on} = 0.7V$  for the diode,  $V_1 = -2V$ , and  $V_m = 4V$ , the output voltage  $V_o$  is

1 point



- sinusoidal, varying between  $-7.3V$  and  $0.7V$
- sinusoidal, varying between  $-0.7V$  and  $7.3V$
- constant, equal to  $-2.7V$
- constant, equal to  $5.3V$

No, the answer is incorrect.

Score: 0

Accepted Answers:

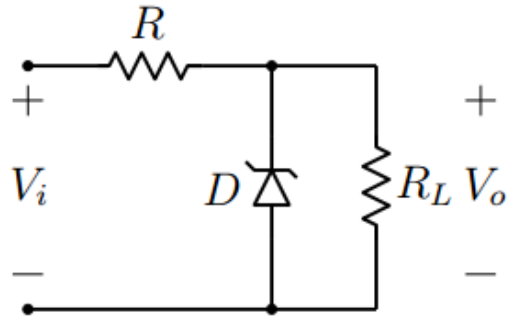
sinusoidal, varying between  $-0.7V$  and  $7.3V$

15) A simple voltage regulator circuit is shown in the figure. To ensure proper operation, the Zener diode requires a minimum current of  $20mA$ . The maximum power dissipation of the Zener diode is  $2W$ . If  $V_i = 12V$ ,  $V_Z = 5V$ , and  $0.5k\Omega < R_L < 1k\Omega$ , what minimum value of  $R$  is

1 point



required?



- 52Ω  
 17Ω  
 83Ω  
 115Ω

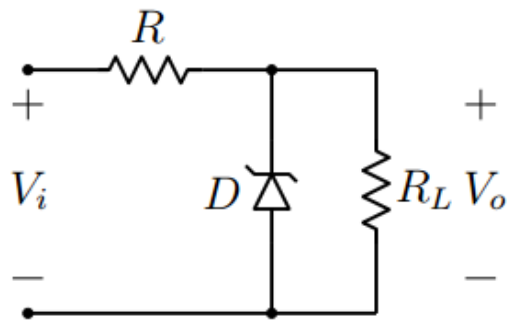
No, the answer is incorrect.

Score: 0

Accepted Answers:

17Ω

16) For the regulator circuit of Q-15, what is the maximum value of  $R$  for which the circuit would work as desired? **0 points**



- 52Ω  
 83Ω  
 345Ω  
 280Ω

No, the answer is incorrect.

Score: 0

Accepted Answers:

280Ω

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End



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