Ústav Aplikovanej Mechaniky a Mechatroniky
Strojnícka fakulta STU v Bratislave

ZADANIE č. 2

Vyšetrovanie odozvy systému

Meno a Priezvisko:
Krúžok:

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ZADANIE:

Ak uvažujeme **systém** podľa variantu zadania. Odvoďte diferenciálne rovnice daného systému s uvažovaním vstupných parametrov podľa nasledovnej Tab.

Tab.: Vstupné parametre mechanického systému

m_1 [kg]	m_2 [kg]	k_1 [N.m^{-1}]	k_2 [N.m^{-1}]	b_1 [N.s.m^{-1}]	b_2 [N.s.m^{-1}]	f [Hz]	FO [N]
3	5	1000	1500	10	15	10	100

Následne vykonajte dané úlohy zadania

1. Nájdite prenosovú funkciu systému
2. Analytickým spôsobom inverznou Laplaceovou transformáciou vypočítajte odozvu systému y(t) na jednotkový vstup **u(t)=1**. Ak **Y(s)=G(s)*U(s)**. A porovnajte v Matlabe na grafoch s riešením použitím príkazu **step**.
3. Napíšte skript v Matlabe, v ktorom zadefinujete systém prenosovou funkciou systému a takisto budiaci signál **u(t).** Určte v Matlabe odozvu systému na Vami zadaný signál podľa Variantu zadania príkazom **lsim**.
4. Napokon riešenie pre vstupný signál zobrazte na dvoch grafoch pod sebou pre **vstupný signál u(t)** a odozvu systému **výstupného signálu y(t)**.

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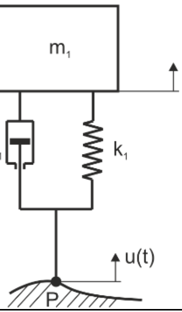
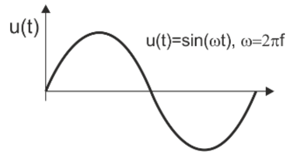
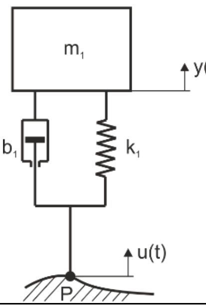
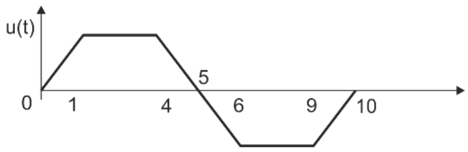
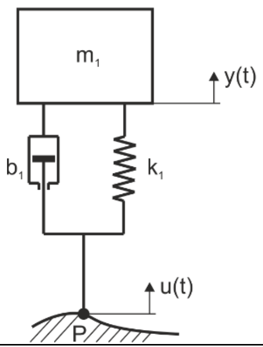
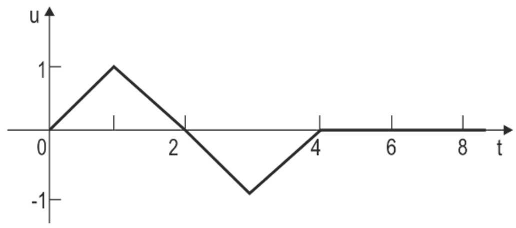
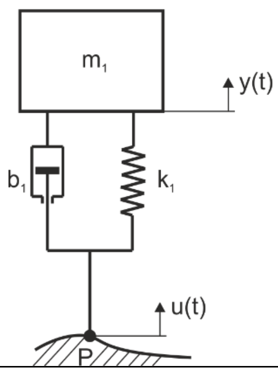
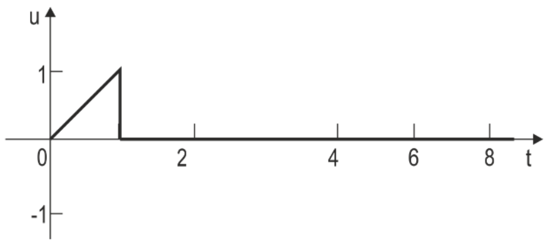
VARIANTY ZADANÍ

1.	 
2.	 
3.	 
4.	 

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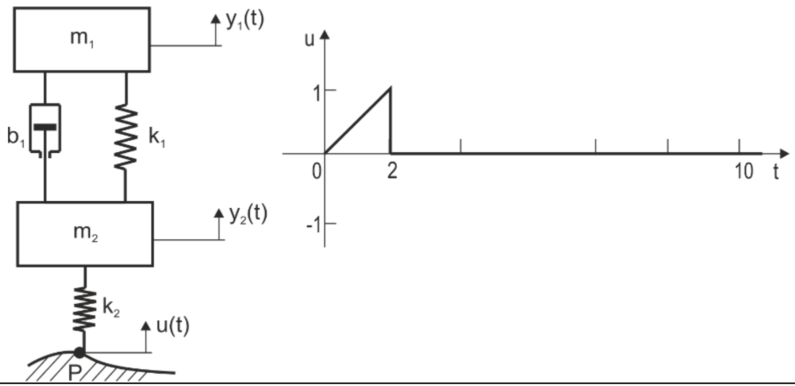
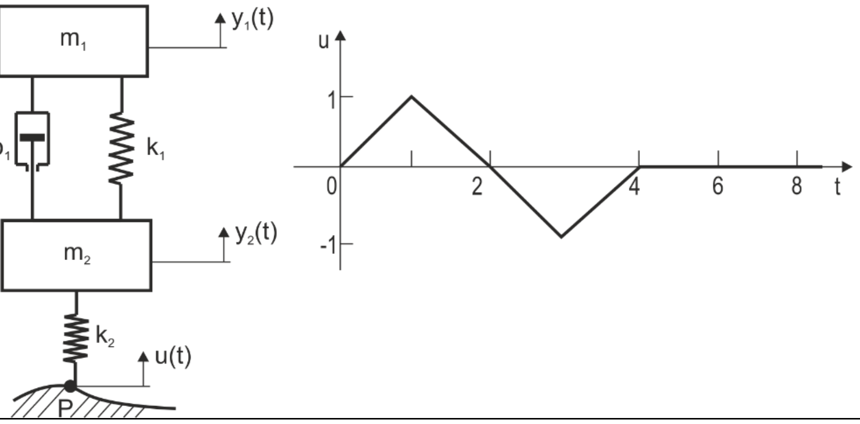
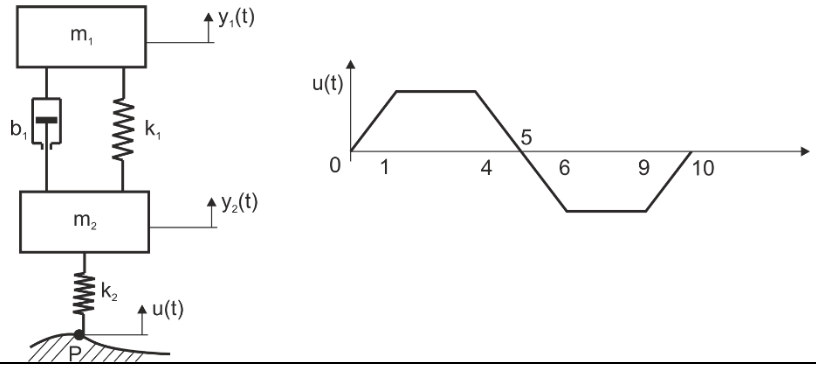
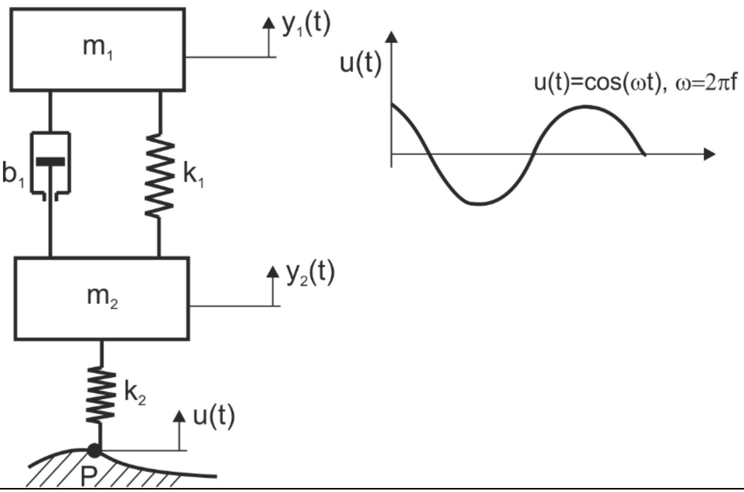
5.	
6.	
7.	
8.	

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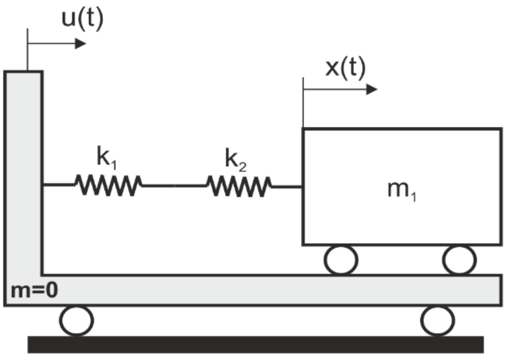
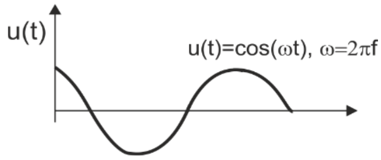
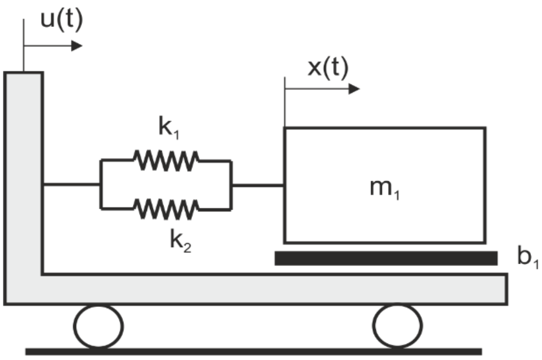
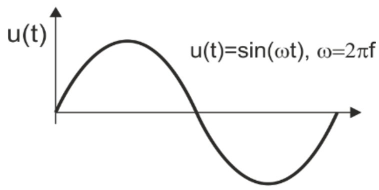
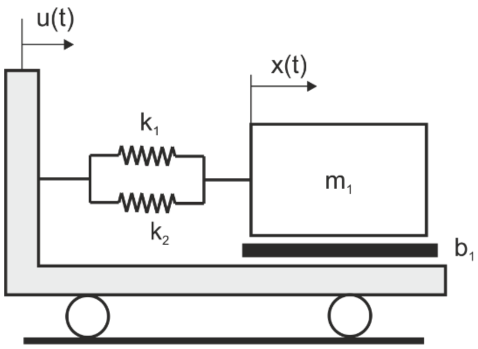
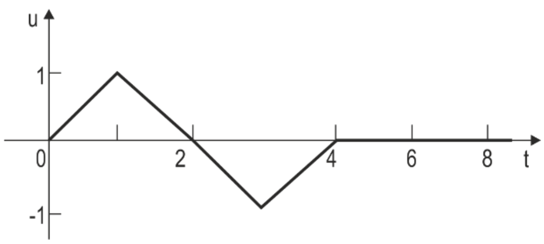
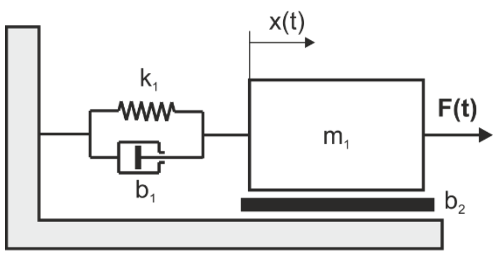
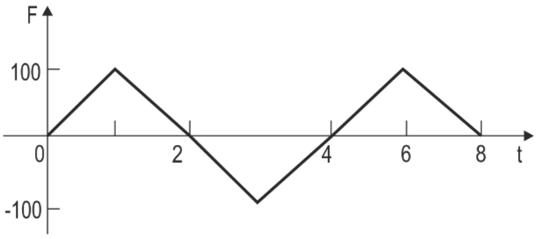
9.	 
10.	 
11.	 
12.	 

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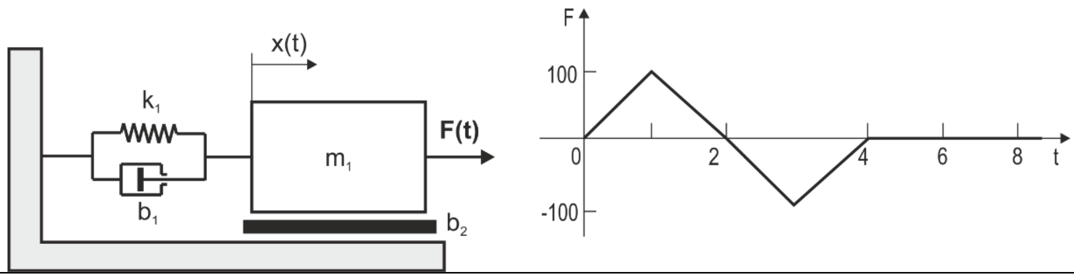

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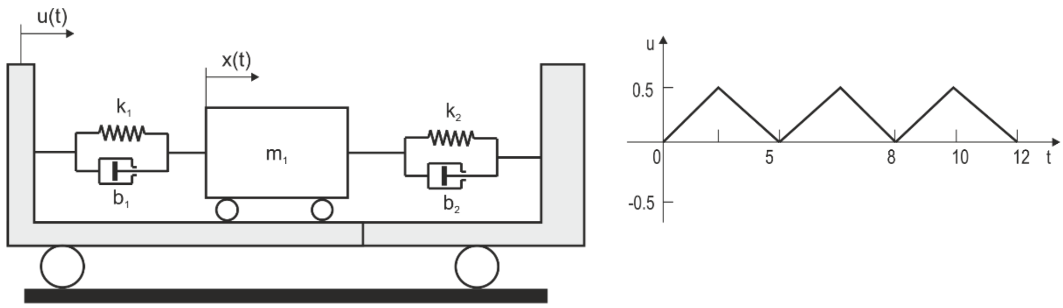

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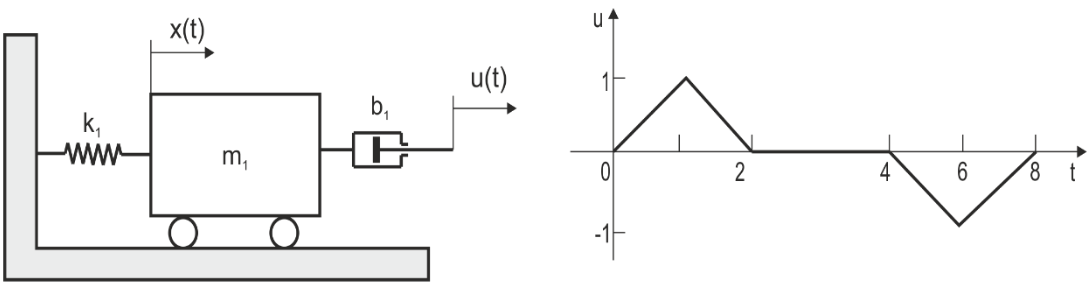

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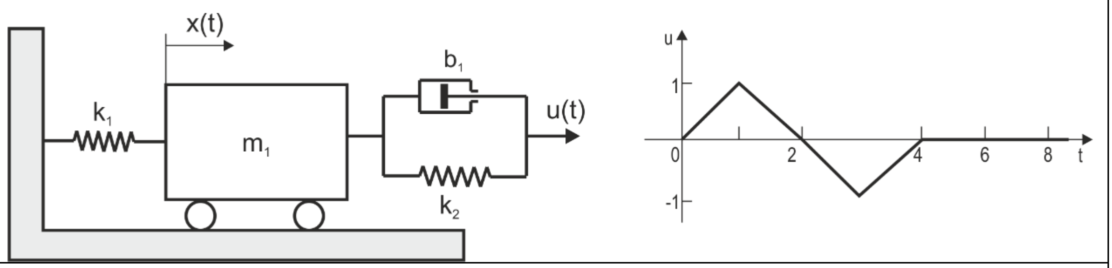

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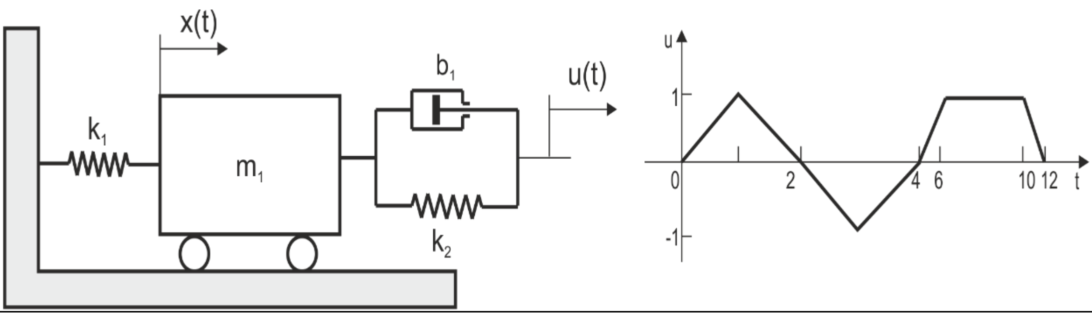

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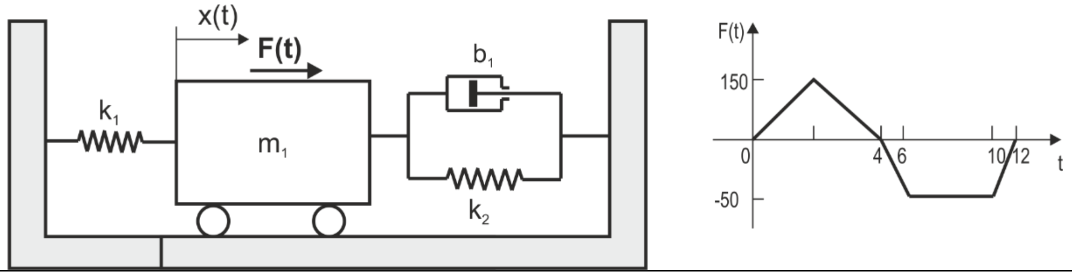
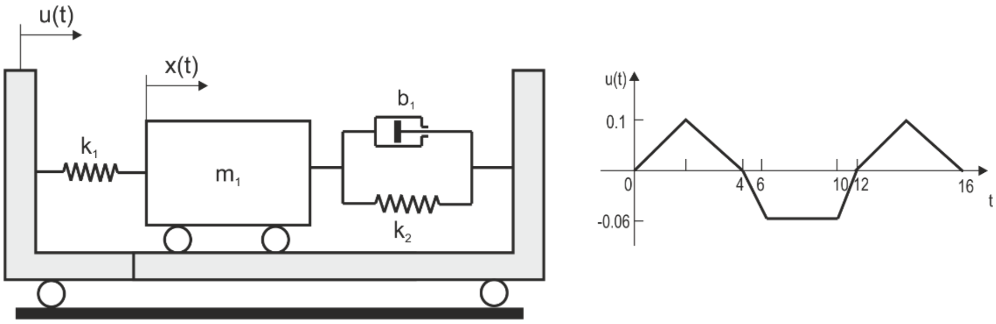
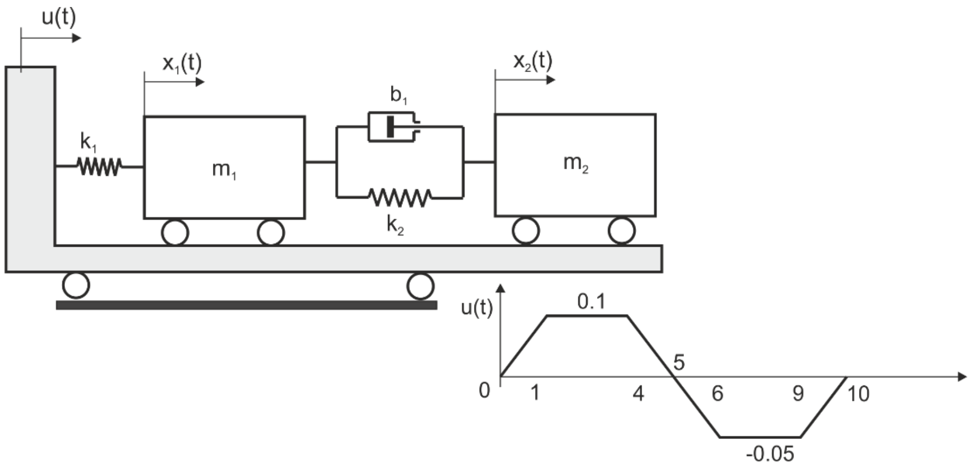
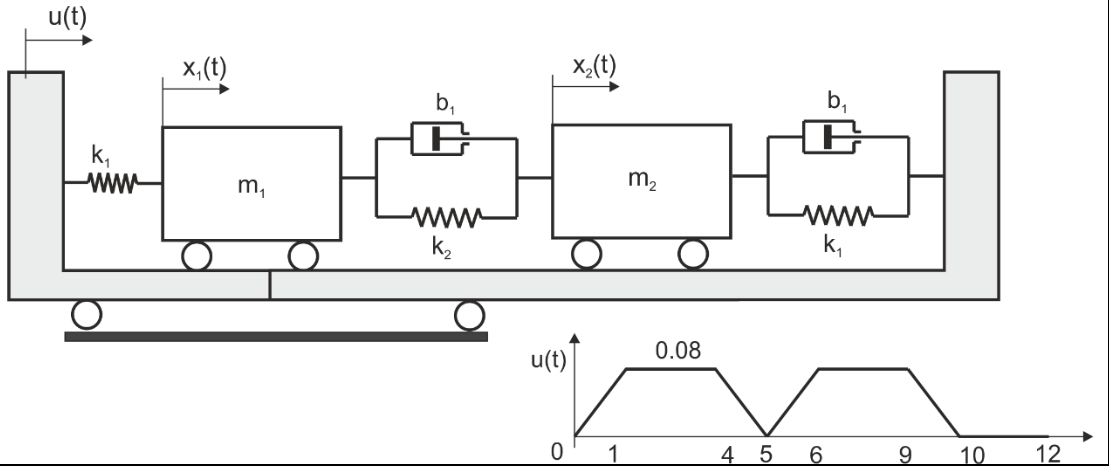
18.	
19.	
20.	
21.	

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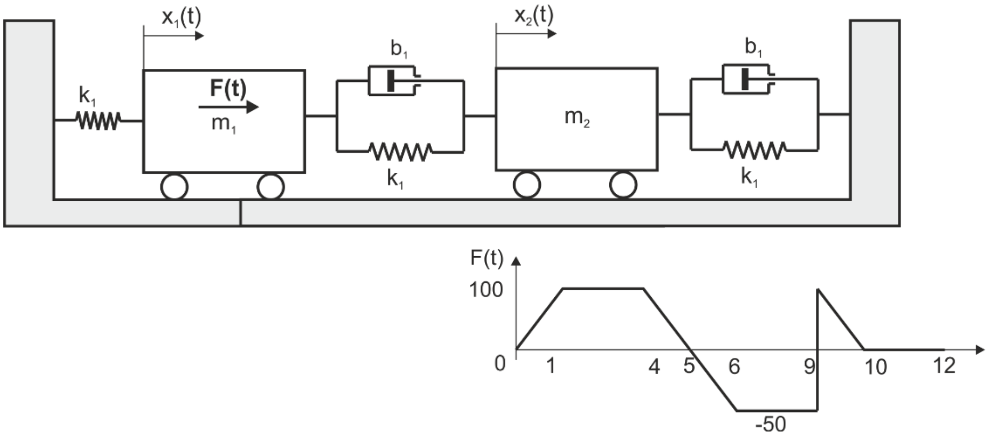
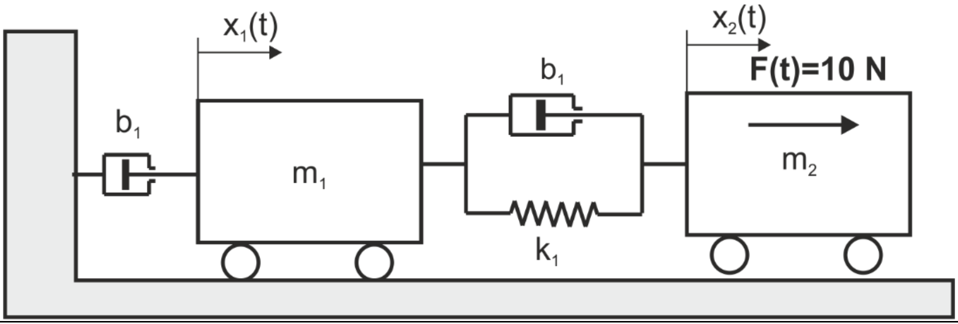
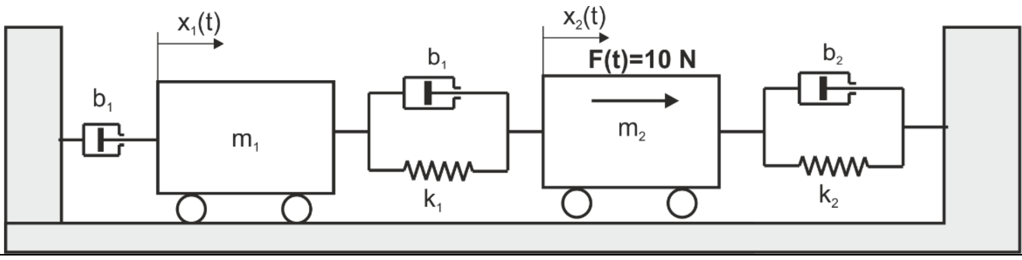
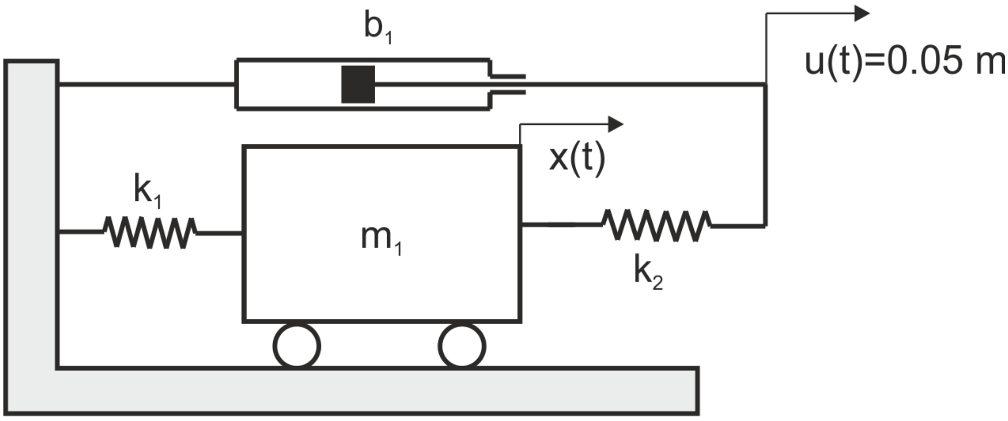
22.	
23.	
24.	
25.	

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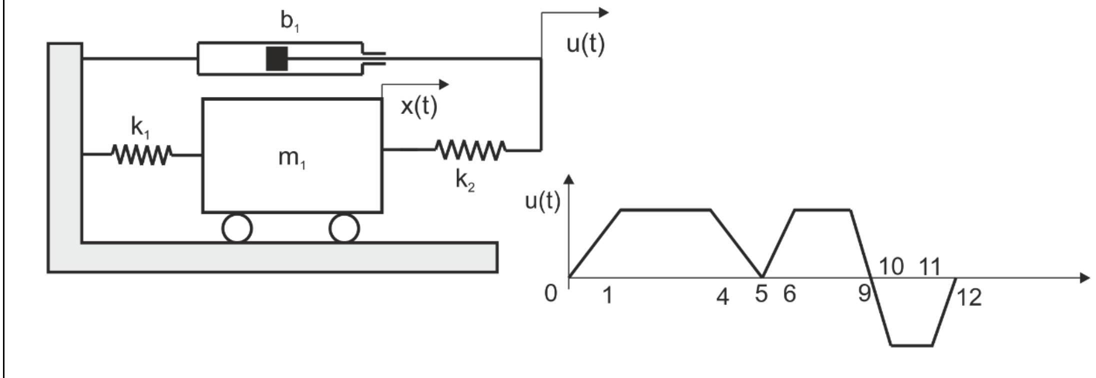

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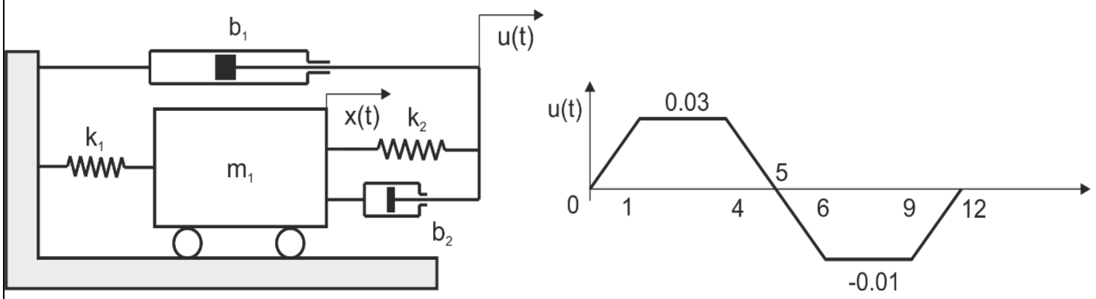

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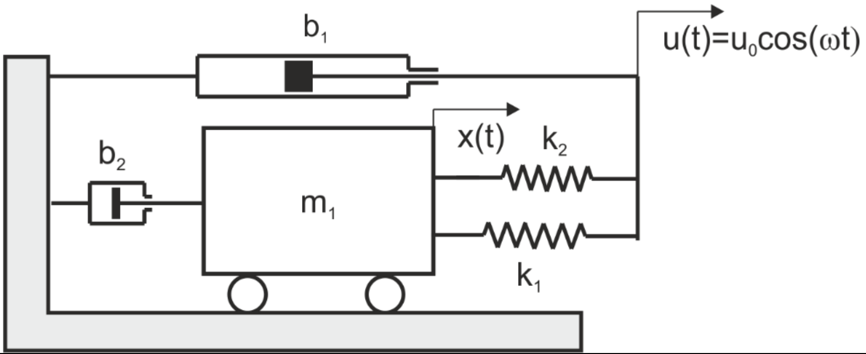

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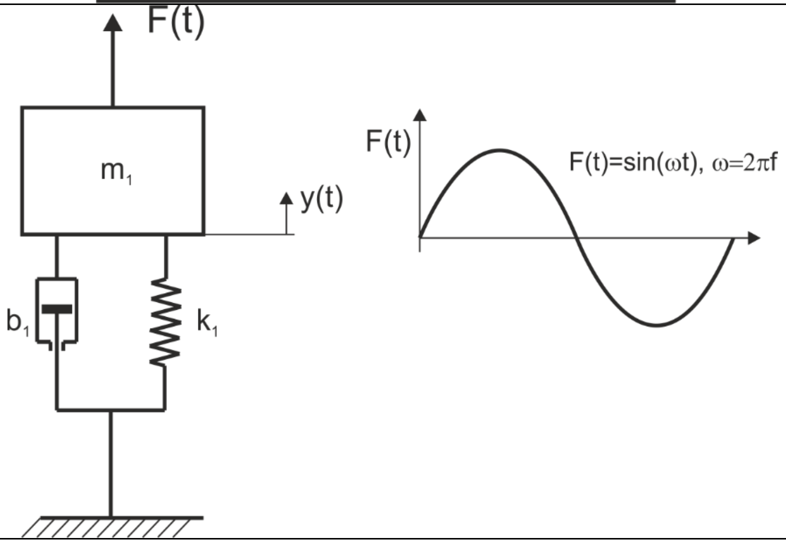

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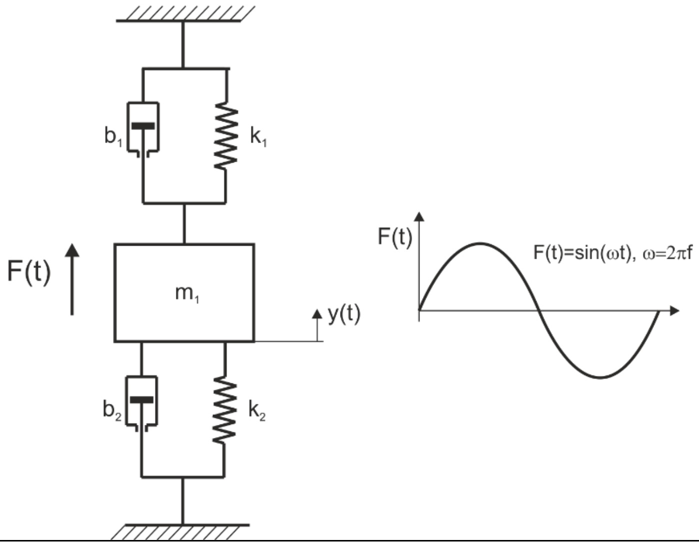

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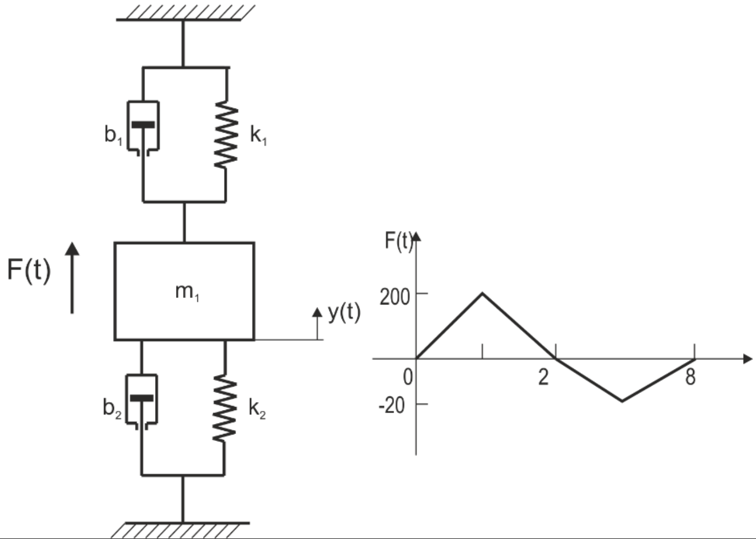

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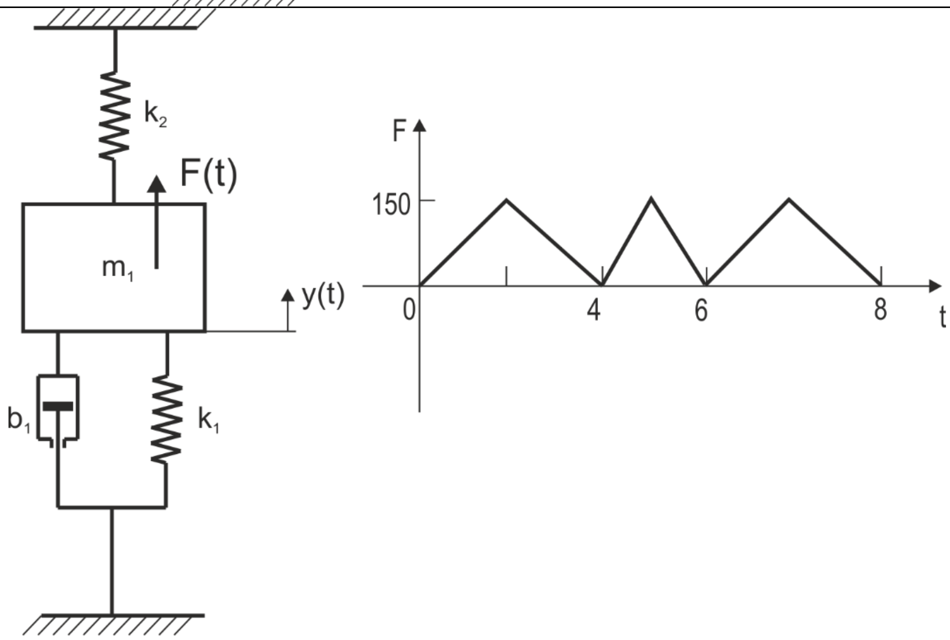

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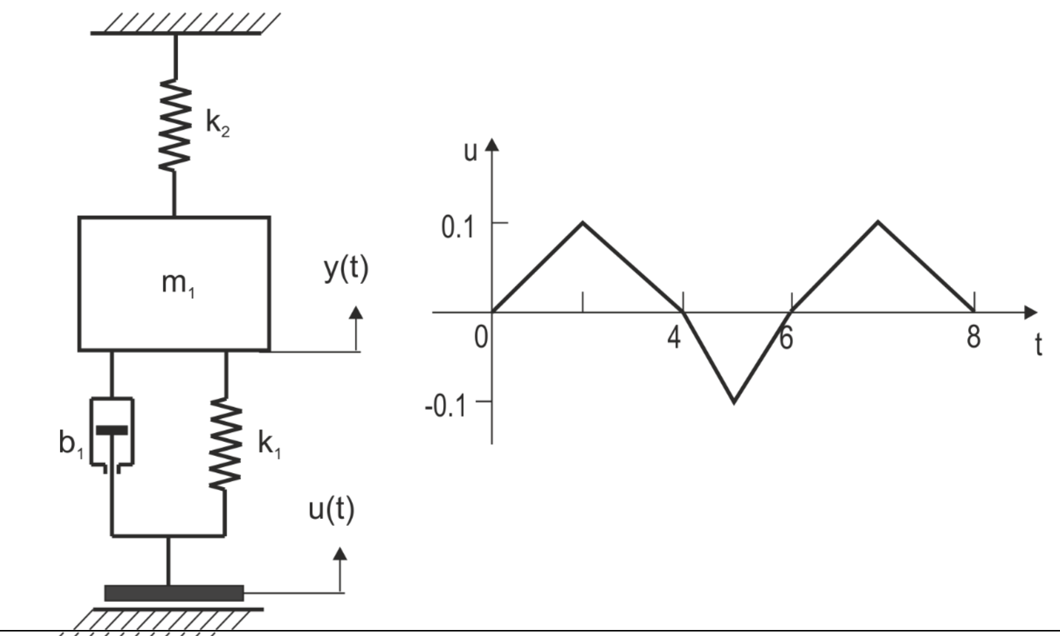
<tr><td>33.</td><td>
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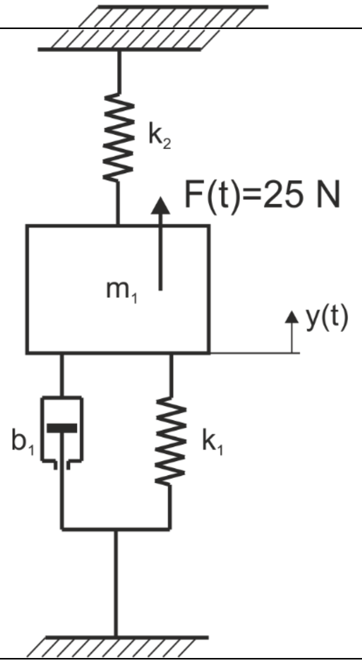
<tr><td>34.</td><td>
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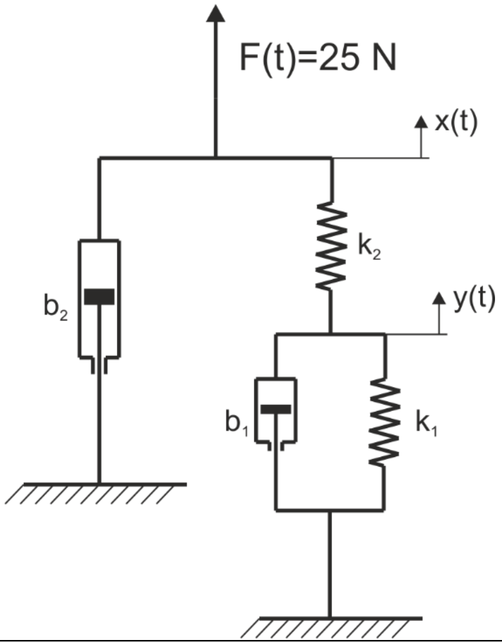
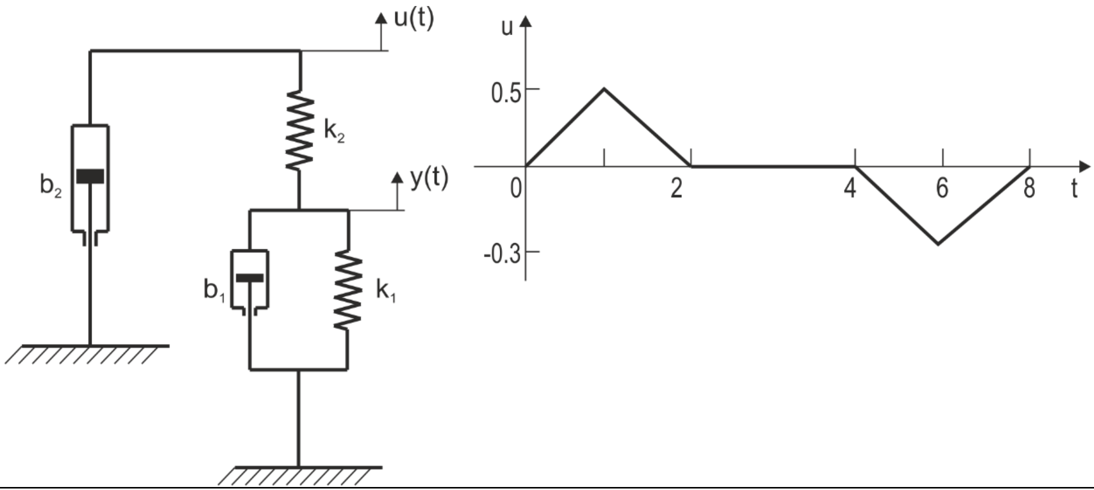
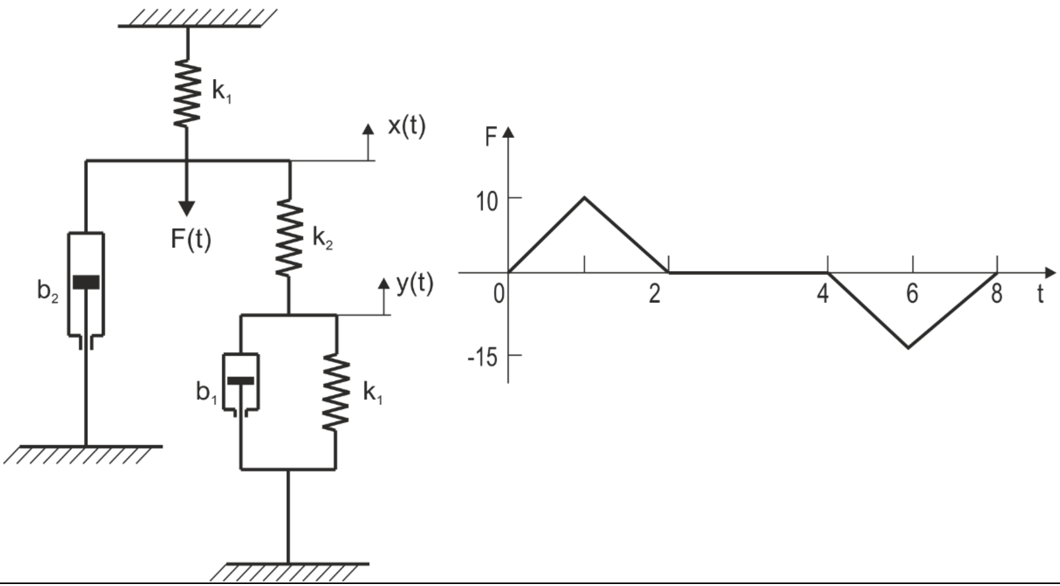
35.	
36.	
37.	

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