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1		28	4	0	10	4	10
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3		26	4	0	8	4	10
		26	4	0	8	4	10
		108	16	0	34	16	42
		-					
		12	4	0	4	0	4
		16	4	0	6	2	4
		16	4	0	6	2	4
		12	2	0	4	2	4
		16	6	0	2	2	6
		16	6	0	4	2	4
		23	6	0	8	4	5
		6	2	0	0	2	2
		27		0			27
		144	34	0	34	16	33+27

	252	50	0	68	32	102
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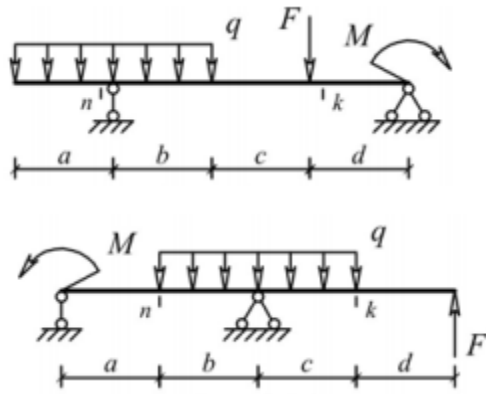
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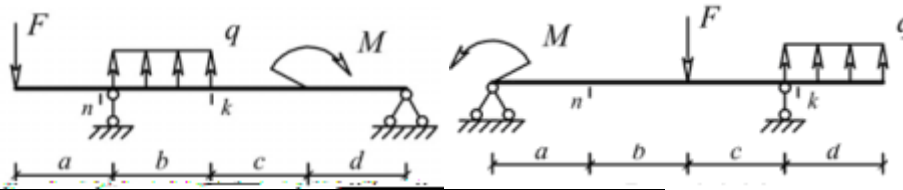
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a,	b,	c,	d,	F,	q,	(M,
2	3	4	2	4	2		6
3	4	3	4	5	1		5

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a,	b,	c,	d,	F,	q,	(M,
3	3	2	1	14	2		16
1	2	3	4	7	3		15

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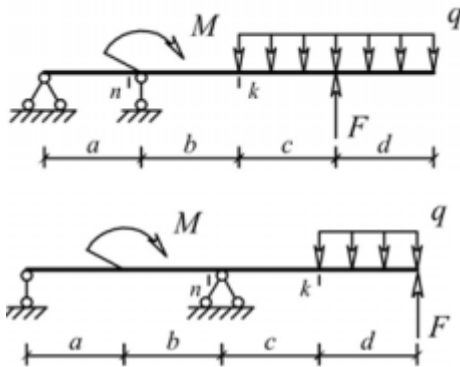
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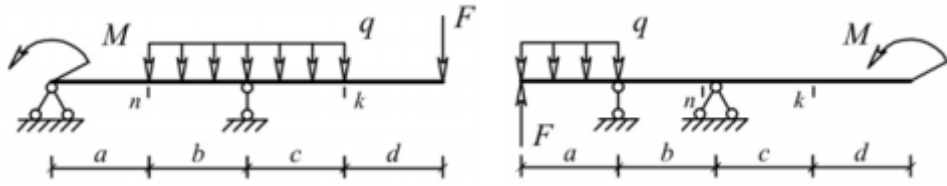
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a,	b,	c,	d,	F,	q,	(M,
4	2	2	3	3	2		8
2	1	3	4	5	4		7

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$a,$	$b,$	$c,$	$d,$	$F,$	$q,$	$($	$M,$
2	1	1	3	4	2		8
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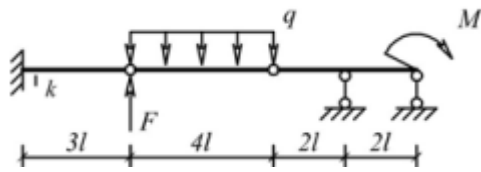
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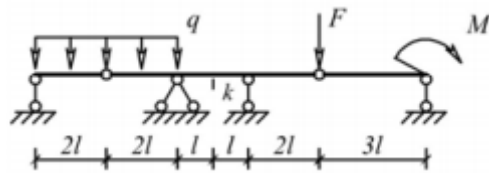
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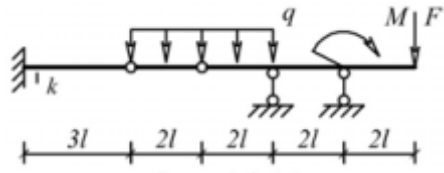
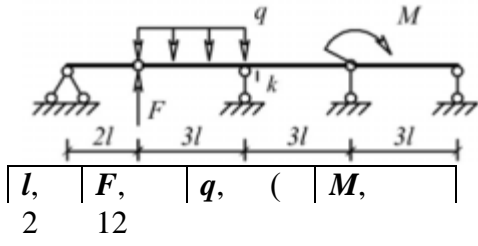


$l,$	$F,$	$q,$	$($	$M,$
2	4	2		6

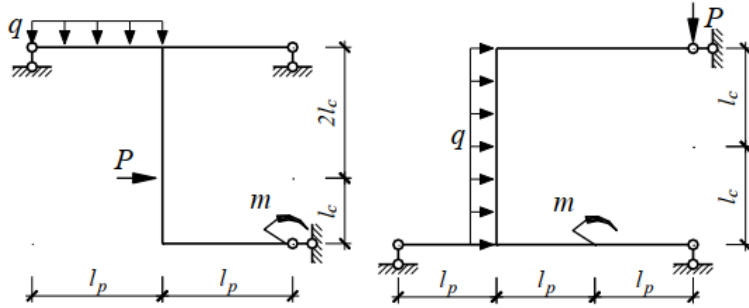


$l,$	$F,$	$q,$	$($	$M,$
2	10	4		16

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$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
1,5	2	6	3		10
2	1,5	14	2		15

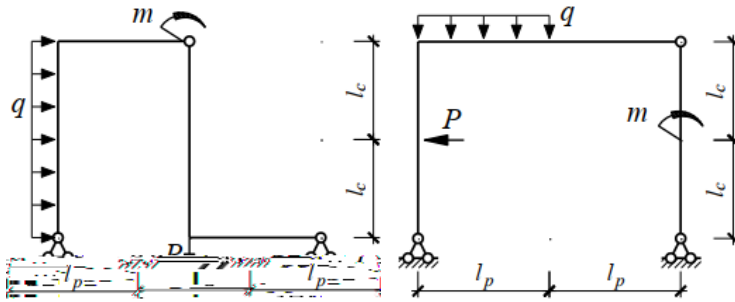
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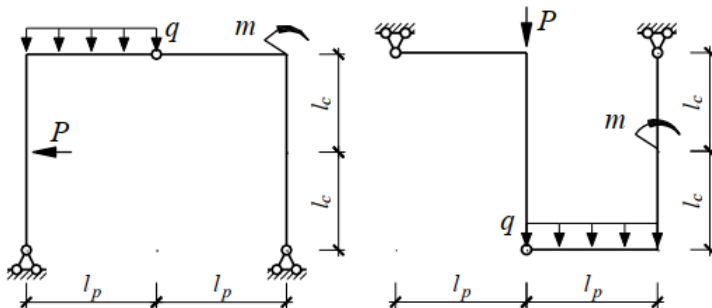
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$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
1,5	2	6	1		5
2	3	10	2		12

3



$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
2,5	2	10	4		15
3	2	12	2		12

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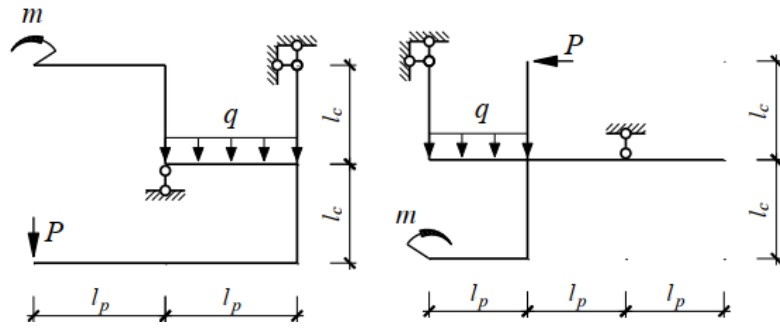
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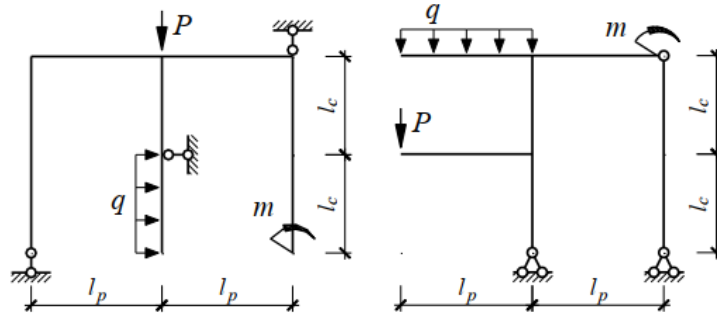
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$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
2	2	16	4		20
2	1	15	3		12

3



$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
2,5	2	20	4		10
2	1,5	16	3		18

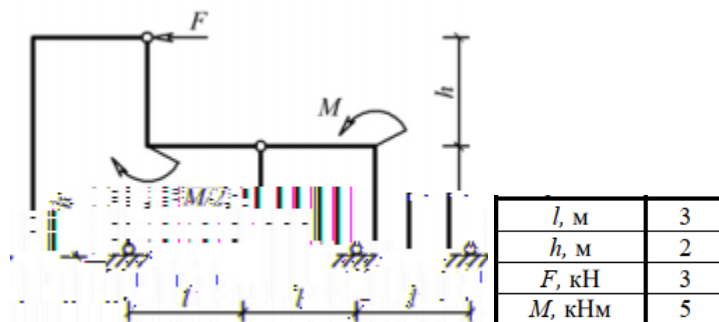
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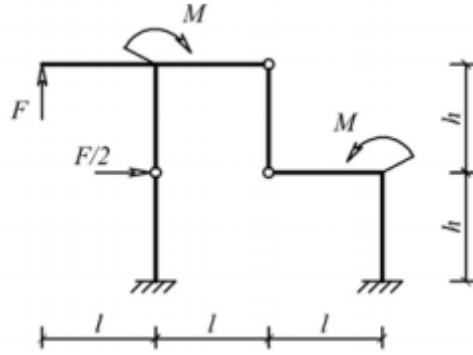
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$l,$	$h,$	$F,$	$M,$
2	2,5	10	20

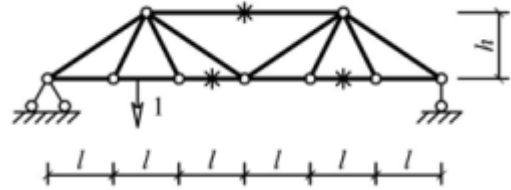
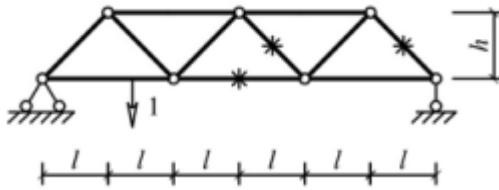
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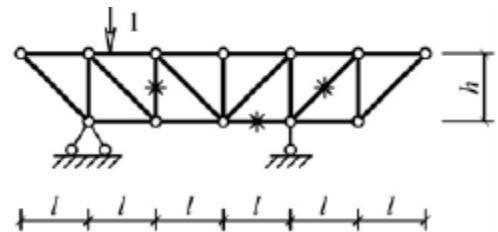
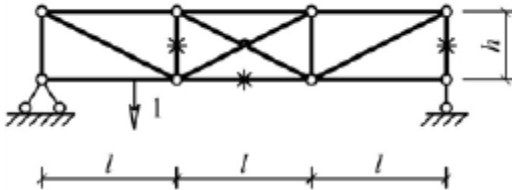
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$l,$	$h,$	$F,$
2	2	10
1,5	2	8

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$l,$	$h,$	$F,$
2	1	12
1,5	2	20

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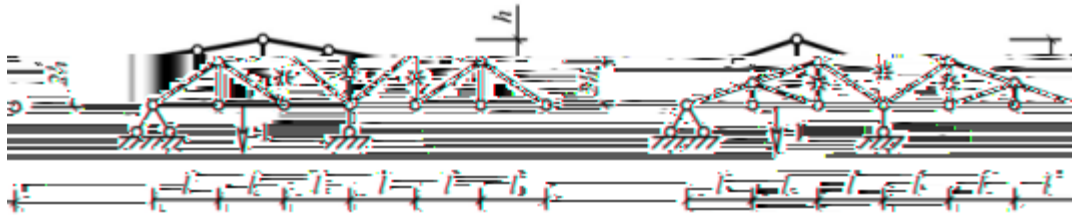
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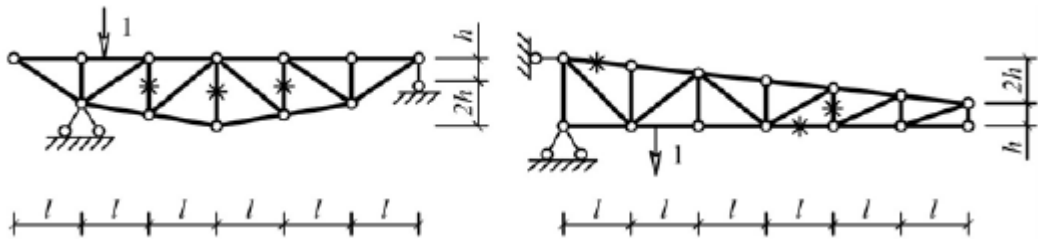
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$l,$	$h,$	$F,$
0,75	1,5	9
1,75	2	12

3



$l,$	$h,$	$F,$
1,75	2,5	15
1,5	2	12

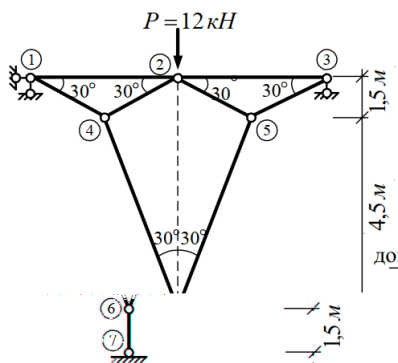
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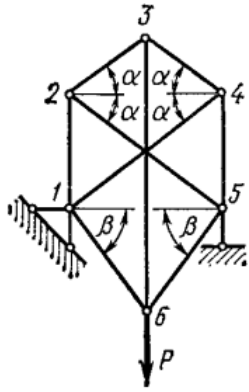
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$l,$	$f,$
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1	6
3	5

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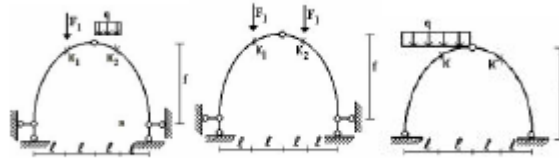
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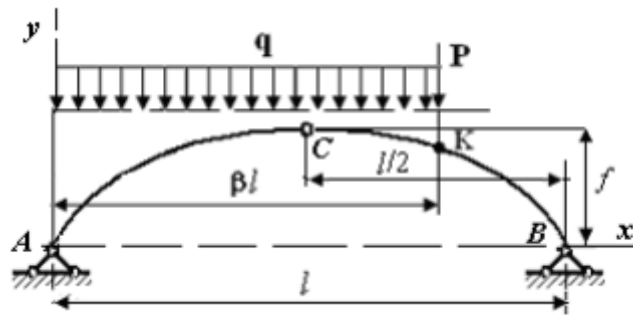
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$l,$	$f,$	$F,$	$q,$	(
2	4	12	2	
1	6	10	3	
3	5	15	4	

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$P=10 \quad q=2 \quad (\beta=4 \quad f=1 \quad l=6)$

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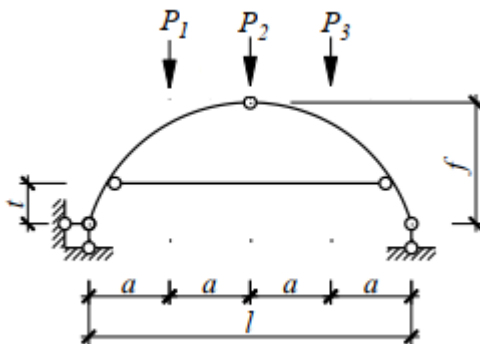
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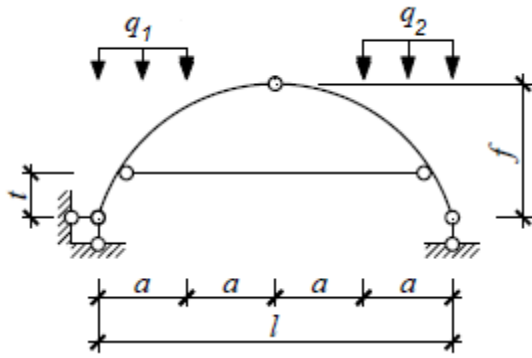
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$a,$	f	t	$P_1,$	P_2	P_3
1	2	0,5	10	16	5



$a,$	f	t	q_1	q_2
1	2	0,5	10	16

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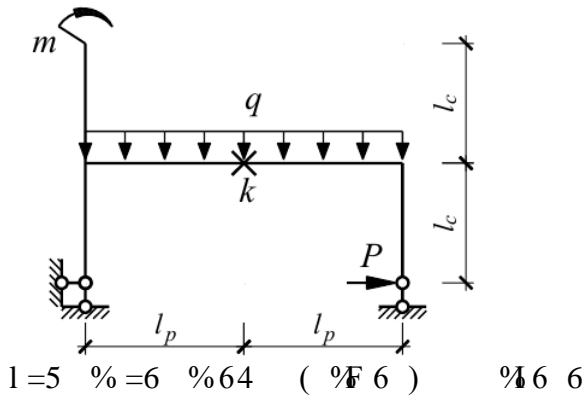
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$l/$ %

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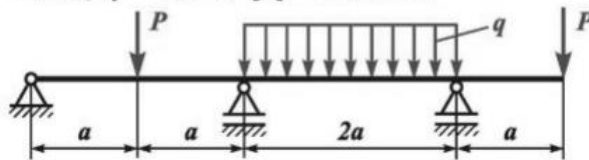
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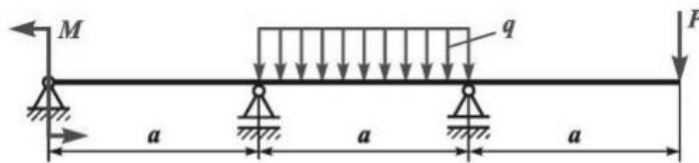
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$a = 1 \text{ m}$, $P = 10 \text{ kH}$, $q = 4 \text{ kH/m}$, $[\sigma] = 160 \text{ MPa}$.



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$a = 2 \text{ m}$, $P = 1 \text{ kH}$, $q = 2 \text{ kH/m}$, $M = 4 \text{ kHM}$, $h/b = 2$, $[\sigma] = 160 \text{ MPa}$.



3.

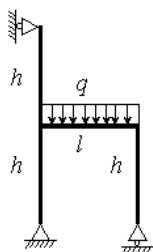
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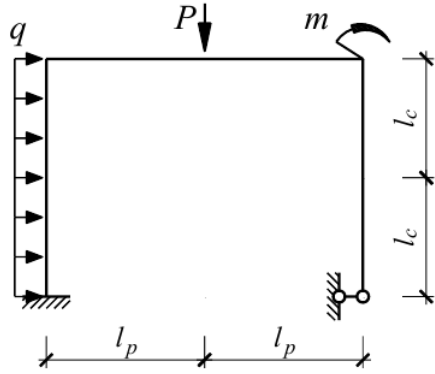
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$l,$	$h,$	$q,$
11	2	15

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$l_c,$	$l_p,$	$P,$	$q,$	$M,$
2,5	3	30	10	40

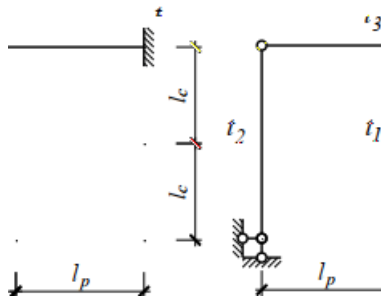
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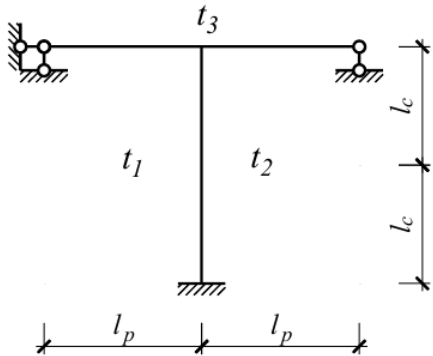
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16/ % =4 %b16) %b26) t3=-) , h6) % .

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1 =3 % =5 %b1=2) %b2=3) t3=-15 , h=0,5 .

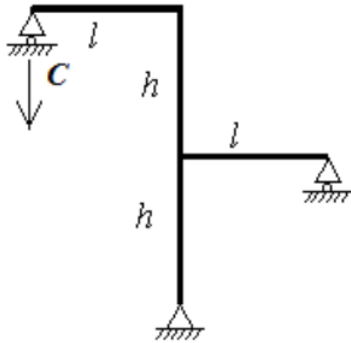
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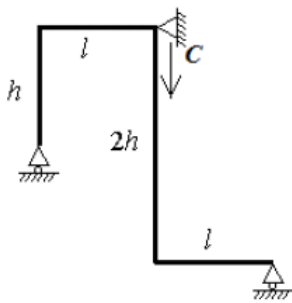
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$l,$	$h,$	$c,$
5	4	1,5

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$l,$	$h,$	$c,$
2	3	4

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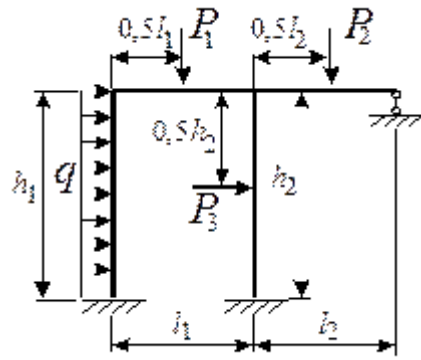
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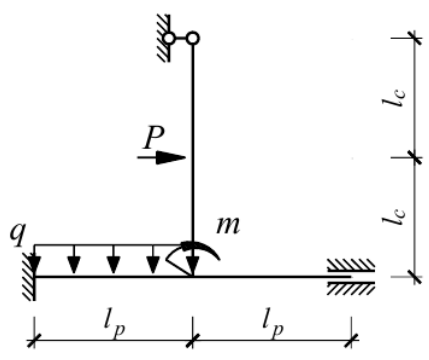
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$l_1,$	$l_2,$	$h_1,$	$h_2,$	$q,$	$P_1,$	$P_2,$	$P_3,$	I_1/I_2
4	10	3	11	1,1	4	0	0	0,5



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$l_c,$	$l_p,$	$P,$	$q,$	$($	$M,$
1,5	1	10	6)	20

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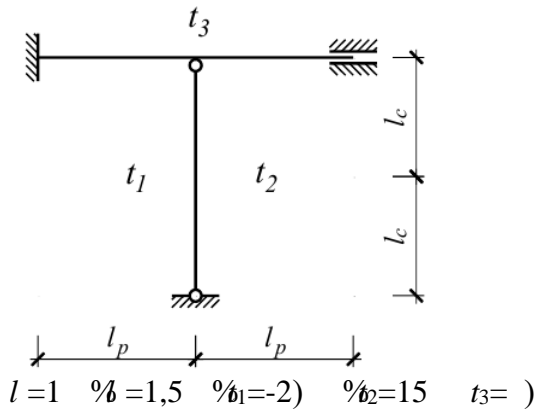
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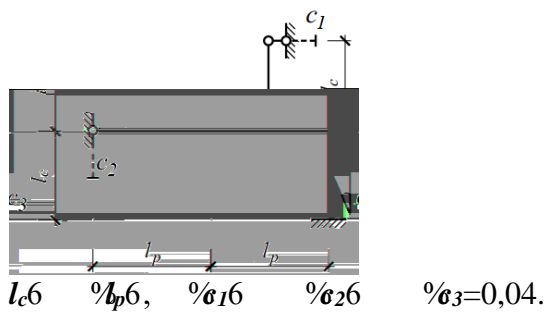
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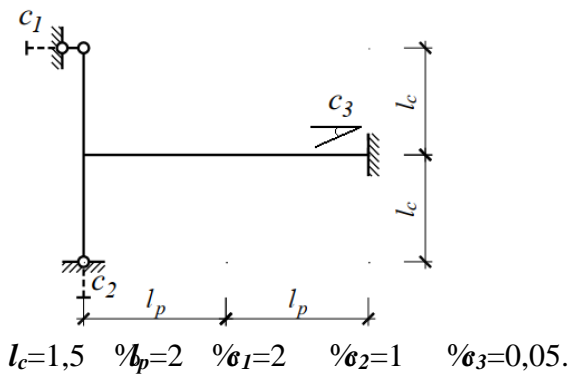
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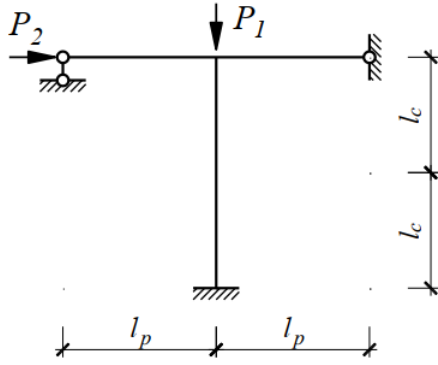
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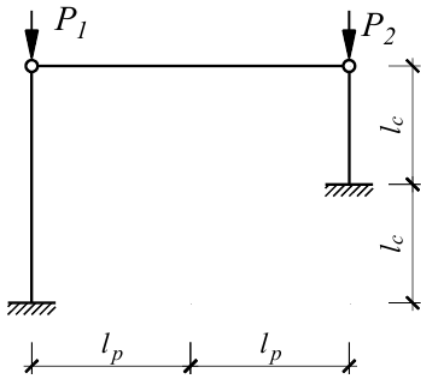
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$l_c = 4 \text{ m}, l_p = 5 \text{ m}, P_1 = P, P_2 = 2P.$

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$l_c = 1 \text{ m}, l_p = 6 \text{ m}, P_1 = 3P, P_2 = P.$

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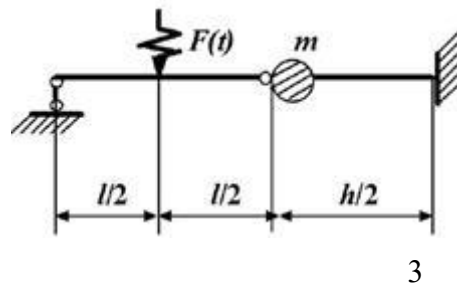
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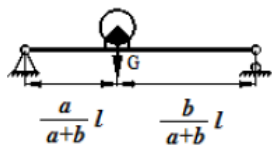
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	$\frac{F(t)}{\sin \theta t}$	$m,$	$EI,$	$l,$	$h,$
0,4	10	5000	70000	3	5



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$G,$	$n,$	$($	$l,$	a	b
30	350		5	5	6

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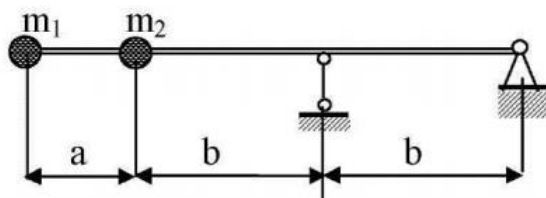
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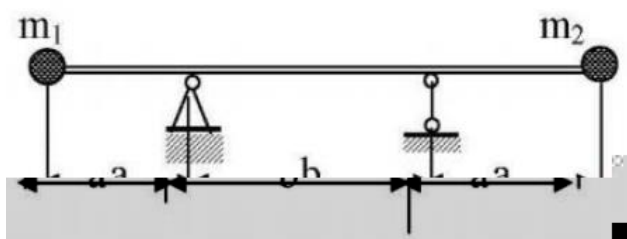
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$a = 1 \text{ м}, b = 2 \text{ м},$, $m_2 = m.$



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$a = 1 \text{ м}, b = 2 \text{ м}, \quad , m_2 = m.$

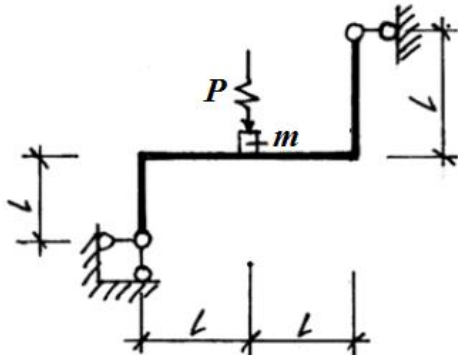
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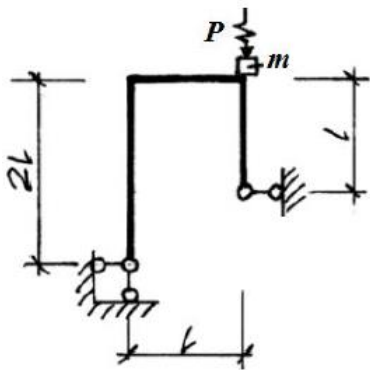
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$l = 2 \text{ м}, m = 1000 \text{ кг}, P = P_0 \sin \theta t, P_0 = 2 \text{ кН}, EI = 20000 \text{ кН} \cdot \text{м}^2,$
 $\theta = 0,8\omega_{min}.$

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$l=1 \text{ м}, m=2000 \text{ кг}, P = P_0 \sin \theta t, P_0 = 2 \text{ кН}, EI = 20000 \text{ кН} \cdot \text{м}^2,$
 $\theta = 0,8\omega_{min}.$

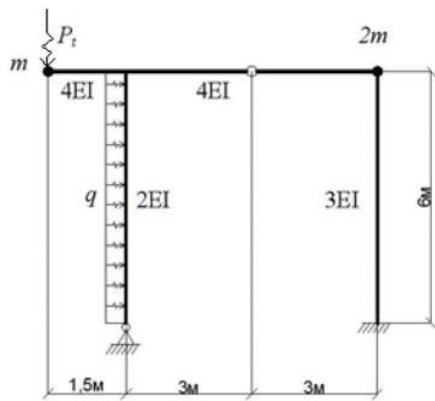
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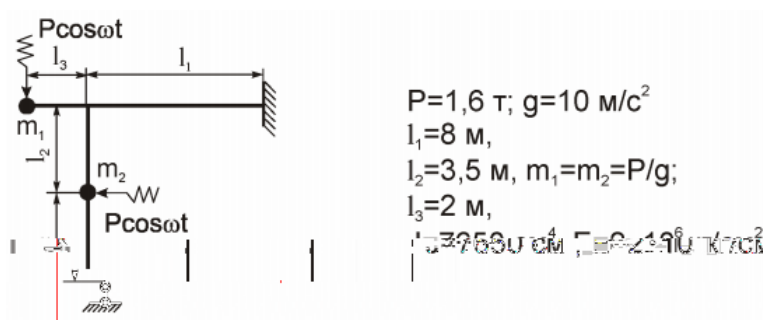
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$P_1 = P \sin \alpha$, $q_1 = q \sin \alpha$, $\alpha = \arcsin \frac{1}{3}$, $P = 12$ т, $q = 4$ т/м (



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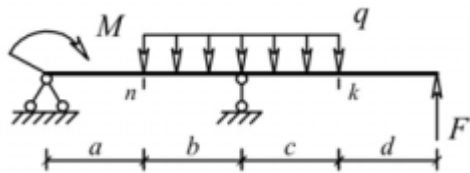
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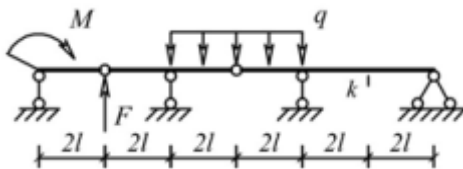
SCAD.



$a,$	$b,$	$c,$	$d,$	$M,$	$F,$	$q, /$
2	3	4	2	6	4	2

- 2.

SCAD.



$l,$	$M,$	$F,$	$q, /$
2	6	4	2

- 1.
- 1)
- 2)
- 3)
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- 6)
- 7)

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Q

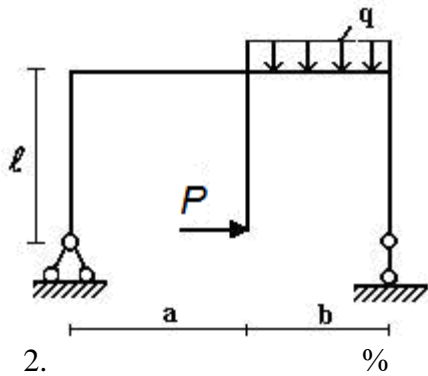
N;

%Q N;

4

SCAD.

P,	%	b,	%	q,
12	1	2	24	5



- 2.
- 1)
- 2)
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- 5)
- 6)

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$P\%$

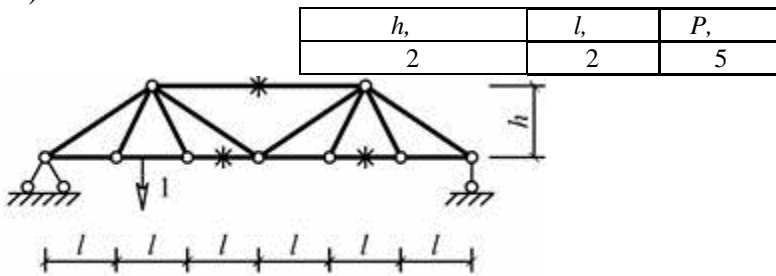
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SCAD;

4



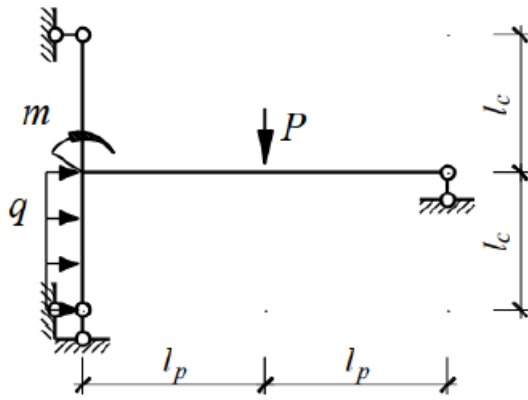
- 1.

$M, N, Q.$

3

- x
- x
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- x

$N \quad Q.$
SCAD.



$m,$	$q,$	$P,$	$l_c\%$	$l_p\%$
4	1	8	2	2

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2.

$M, N, Q.$

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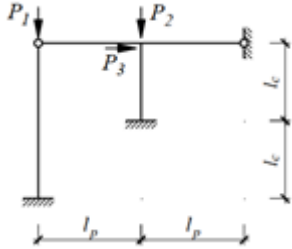
25.

26.

Образец экзаменационного билета

- 1.
- 2.
- 3.

$P_1=3P, P_2=P, P_3=2P, l_p=3, l_c=4$



На экзамене

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5. [online.ru/bcode/449879](http://biblio-online.ru/bcode/449879) ((T URL: <http://biblio-online.ru/bcode/455848> 325.08.2020).
 3. % : (2- %
 3 %)) 157
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7.3.

1. <http://www.stroitmeh.ru/> -
2. https://www.youtube.com/playlist?list=PLPltKsCTLqkybDHgg6Kp_Z5iriPJuHYIu -
3. <http://elibrary.udsu.ru/xmlui/bitstream/handle/123456789/6649/2011272930.pdf> -
4. <https://infopedia.su/14x333.html> -
5. [3\(\(\(\(\(000\(\) 8 6 -](#)
6. <https://dwg.ru/dnl/10438> - SCAD Office.

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