

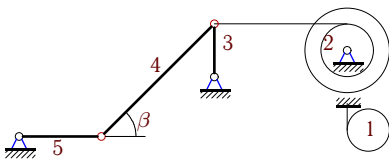
Кинетическая энергия системы. Приведенные массы

Механическая система, состоящая из пяти тел, движется под действием внешних сил. Заданы радиусы цилиндров, блоков и длины стержней. Радиусы инерции даны для блоков, цилиндры и стержни считать однородными. Массы даны в килограммах, радиусы — в сантиметрах. Стержни, направления которых в данный момент не указаны, считать вертикальными и горизонтальными. Вычислить приведенную массу системы μ в формуле $T = \mu v_1^2/2$, где v_1 — скорость груза 1 или центра цилиндра (блока) 1.

Кирсанов М.Н. Задачи по теоретической механике с решениями в **Maple** 11. — М.: ФИЗМАТЛИТ, 2010. — 264 с. (с.111)

Задача D-33.1.

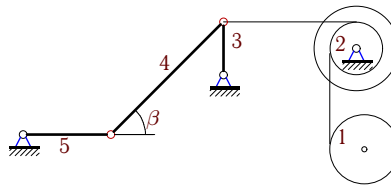
12



$$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 8, m_3 = 3, m_4 = 9, m_5 = 18, \beta = 45^\circ.$$

Задача D-33.2.

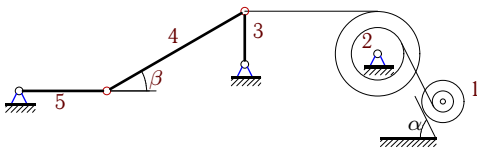
12



$$R_1 = 3.5, R_2 = 4, r_2 = 3, i_2 = 3, m_1 = 2, m_2 = 1, m_3 = 3, m_4 = 9, m_5 = 9, \beta = 45^\circ.$$

Задача D-33.3.

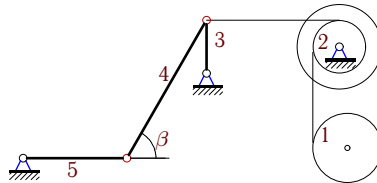
12



$$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 4, r_2 = 2, i_2 = 3, m_1 = 4, m_2 = 48, m_3 = 3, m_4 = 18, m_5 = 27, \beta = 30^\circ.$$

Задача D-33.4.

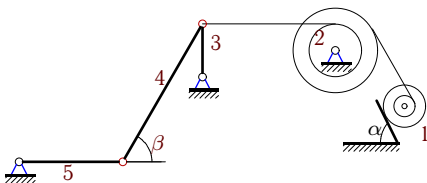
12



$$R_1 = 4.5, R_2 = 5, r_2 = 4, i_2 = 3, m_1 = 2, m_2 = 3, m_3 = 3, m_4 = 9, m_5 = 27, \beta = 60^\circ.$$

Задача D-33.5.

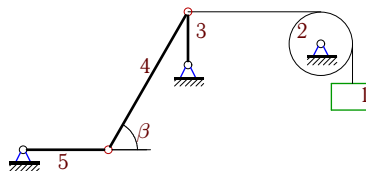
12



$$R_1 = 2, r_1 = 1, i_1 = 1, R_2 = 3, r_2 = 2, i_2 = 3, m_1 = 4, m_2 = 8, m_3 = 3, m_4 = 18, m_5 = 18, \beta = 60^\circ.$$

Задача D-33.6.

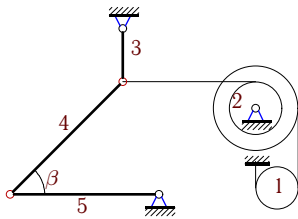
12



$$m_1 = 11, m_2 = 4, m_3 = 3, m_4 = 9, m_5 = 18, \beta = 60^\circ.$$

Задача D-33.7.

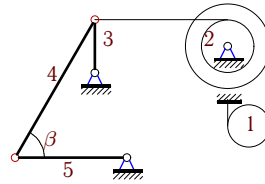
12



$R_2 = 4, r_2 = 2, i_2 = 3, m_1 = 2, m_2 = 24, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 45^\circ.$

Задача D-33.8.

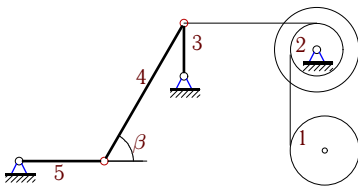
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 24, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 60^\circ.$

Задача D-33.9.

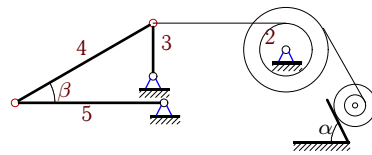
12



$R_1 = 4.5, R_2 = 5, r_2 = 4, i_2 = 3, m_1 = 2, m_2 = 1, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 60^\circ.$

Задача D-33.10.

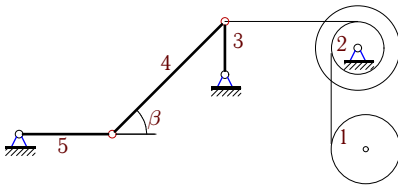
12



$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 3, r_2 = 2, i_2 = 2, m_1 = 12, m_2 = 8, m_3 = 9, m_4 = 9, m_5 = 18, \beta = 30^\circ.$

Задача D-33.11.

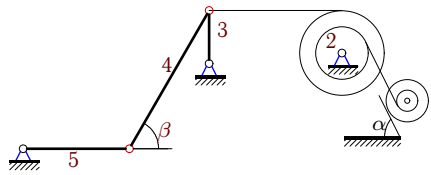
12



$R_1 = 3.5, R_2 = 4, r_2 = 3, i_2 = 3, m_1 = 4, m_2 = 1, m_3 = 12, m_4 = 9, m_5 = 9, \beta = 45^\circ.$

Задача D-33.12.

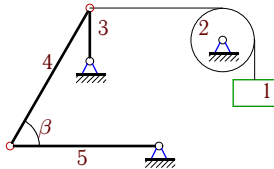
12



$R_1 = 2, r_1 = 1, i_1 = 1, R_2 = 4, r_2 = 2, i_2 = 3, m_1 = 4, m_2 = 80, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 60^\circ.$

Задача D-33.13.

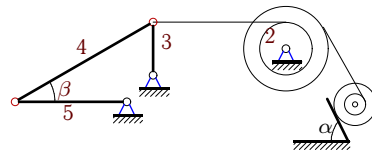
12



$m_1 = 18, m_2 = 2, m_3 = 3, m_4 = 9, m_5 = 9, \beta = 60^\circ.$

Задача D-33.14.

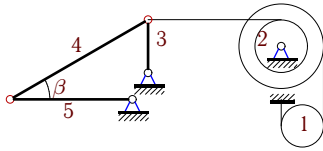
12



$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 3, r_2 = 2, i_2 = 2, m_1 = 4, m_2 = 16, m_3 = 3, m_4 = 9, m_5 = 9, \beta = 30^\circ.$

Задача D-33.15.

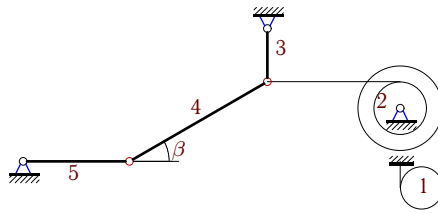
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 20, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 30^\circ.$

Задача D-33.16.

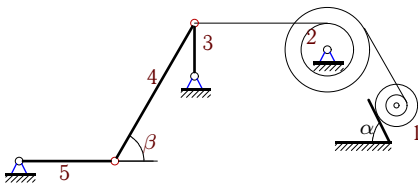
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 10, m_2 = 20, m_3 = 15, m_4 = 9, m_5 = 9, \beta = 30^\circ.$

Задача D-33.17.

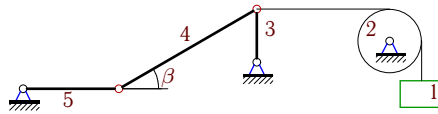
12



$R_1 = 2, r_1 = 1, i_1 = 1, R_2 = 3, r_2 = 2, i_2 = 3, m_1 = m_2 = 16, m_3 = 12, m_4 = 9, m_5 = 9, \beta = 60^\circ.$

Задача D-33.18.

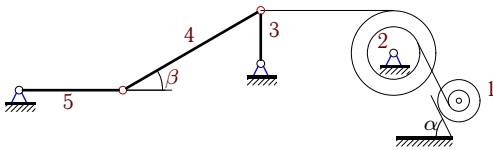
12



$m_1 = 13, m_2 = 6, m_3 = 3, m_4 = 27, m_5 = 27, \beta = 30^\circ.$

Задача D-33.19.

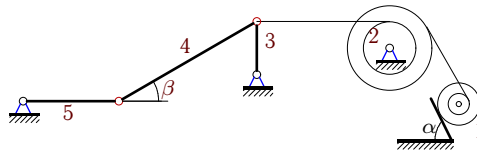
12



$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 4, m_2 = 16, m_3 = 3, m_4 = 9, m_5 = 9, \beta = 30^\circ.$

Задача D-33.20.

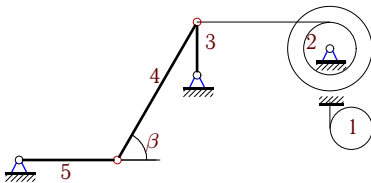
12



$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 3, r_2 = 2, i_2 = 3, m_1 = 4, m_2 = 12, m_3 = 3, m_4 = 27, m_5 = 27, \beta = 30^\circ.$

Задача D-33.21.

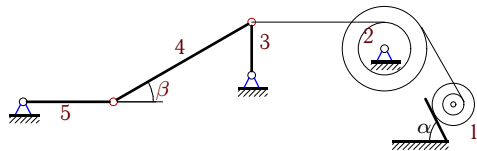
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 4, m_3 = 3, m_4 = 9, m_5 = 9, \beta = 60^\circ.$

Задача D-33.22.

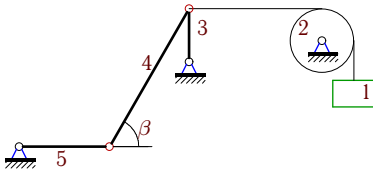
12



$R_1 = 2, r_1 = 1, i_1 = 2, R_2 = 3, r_2 = 2, i_2 = 3, m_1 = 4, m_2 = 24, m_3 = 3, m_4 = 27, m_5 = 9, \beta = 30^\circ.$

Задача D-33.23.

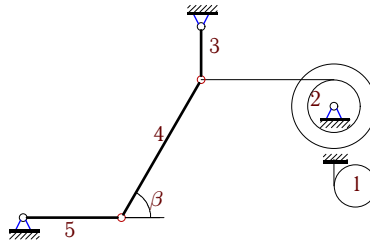
12



$m_1 = m_2 = 6, m_3 = 3, m_4 = 18, m_5 = 27, \beta = 60^\circ.$

Задача D-33.24.

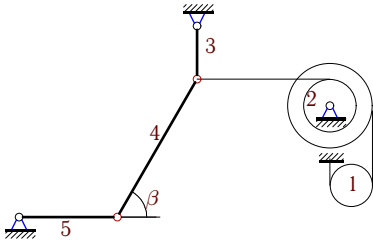
12



$R_2 = 4, r_2 = 2, i_2 = 3, m_1 = 8, m_2 = 20, m_3 = 12, m_4 = 27, m_5 = 9, \beta = 60^\circ.$

Задача D-33.25.

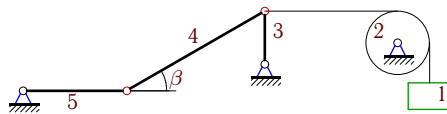
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 12, m_3 = 3, m_4 = 27, m_5 = 27, \beta = 60^\circ.$

Задача D-33.26.

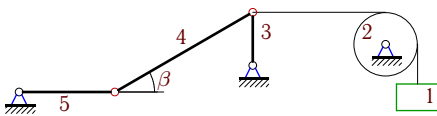
12



$m_1 = 11, m_2 = 10, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 30^\circ.$

Задача D-33.27.

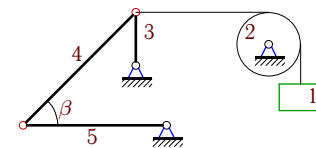
12



$m_1 = 15, m_2 = 8, m_3 = 3, m_4 = 18, m_5 = 9, \beta = 30^\circ.$

Задача D-33.28.

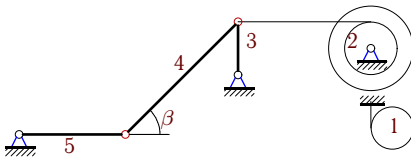
12



$m_1 = 14, m_2 = 4, m_3 = 3, m_4 = 9, m_5 = 18, \beta = 45^\circ.$

Задача D-33.29.

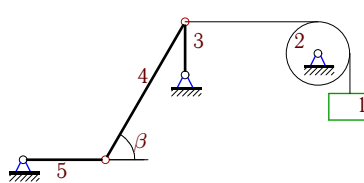
12



$R_2 = 4, r_2 = 2, i_2 = 2, m_1 = 2, m_2 = 16, m_3 = 3, m_4 = 27, m_5 = 9, \beta = 45^\circ.$

Задача D-33.30.

12



$m_1 = 11, m_2 = 4, m_3 = 3, m_4 = 18, m_5 = 18, \beta = 60^\circ.$

D-33 Ответы.**Кинетическая энергия системы. Приведенные массы** 04.11.2012

№	μ_1	μ_2	μ_3	μ_4	μ_5	μ
1	3	8	1	6	6	24
2	51	36	36	216	108	447
3	8	27	1	24	27	87
4	83	108	64	256	192	703
5	5	18	1	8	2	34
6	11	2	1	4	2	20
7	3	54	1	12	3	73
8	3	24	1	8	1	37
9	83	36	64	512	64	759
10	24	8	3	12	18	65
11	102	36	144	216	108	606
12	5	45	1	8	1	60
13	18	1	1	4	1	25
14	8	16	1	12	9	46
15	3	20	1	24	9	57
16	15	20	5	12	9	61
17	20	36	4	4	1	65
18	13	3	1	36	27	80
19	8	4	1	12	9	34
20	8	27	1	36	27	99
21	3	4	1	4	1	13
22	8	54	1	36	9	108
23	6	3	1	8	3	21
24	12	45	4	12	1	74
25	3	12	1	12	3	31
26	11	5	1	24	9	50
27	15	4	1	24	9	53
28	14	2	1	6	6	29
29	3	16	1	18	3	41
30	11	2	1	8	2	24

D-33 файл о33d12D