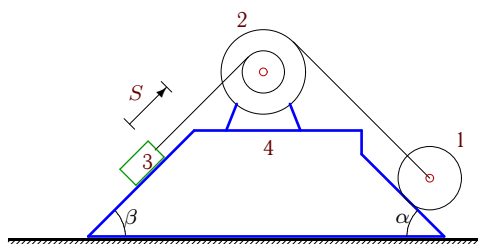


Теорема о центре масс системы

Механизм, состоящий из трех тел, установлен на призме, скользящей по гладкой плоскости. Нити, соединяющие тела, параллельны плоскостям. Под действием внутренних сил из состояния покоя механизм пришел в движение. Центр цилиндра (блока) или бруска сместился относительно призмы на расстояние S . Найти смещение призмы. Массы даны в килограммах, радиусы и смещение — в сантиметрах.

Задача D4.1.

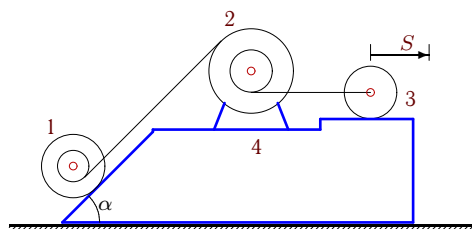
2



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 10, \quad m_3 = 4, \\ m_4 = 13, \quad S = 126, \quad \cos \alpha = 0,8, \quad \beta = \pi/3.$$

Задача D4.2.

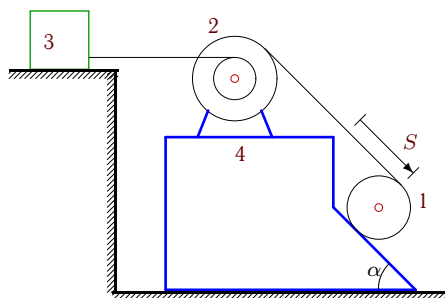
2



$$R_1 = 5, \quad r_1 = 3, \quad R_2 = 4, \quad r_2 = 2, \quad m_1 = 1, \quad m_2 = 12, \\ m_3 = 10, \quad m_4 = 12, \quad S = 105, \quad \cos \alpha = 0,6.$$

Задача D4.3.

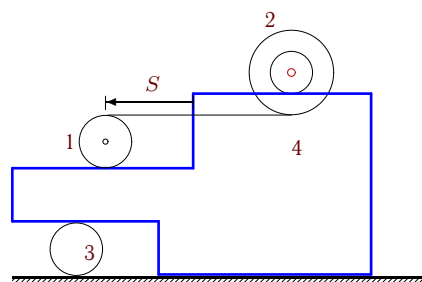
2



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 10, \quad m_3 = 2, \\ m_4 = 13, \quad S = 105, \quad \cos \alpha = 0,8.$$

Задача D4.4.

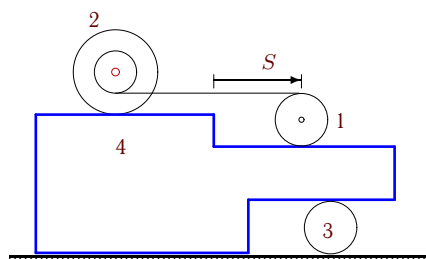
2



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 8, \quad m_3 = 24, \\ m_4 = 15, \quad S = 150.$$

Задача D4.5.

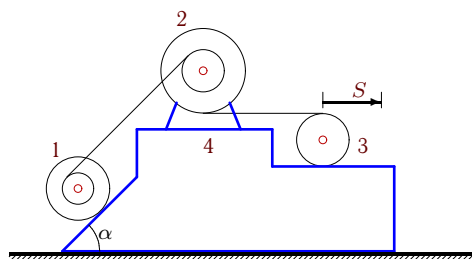
2



$$R_2 = 5, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 2, \quad m_3 = 24, \\ m_4 = 13, \quad S = 168.$$

Задача D4.6.

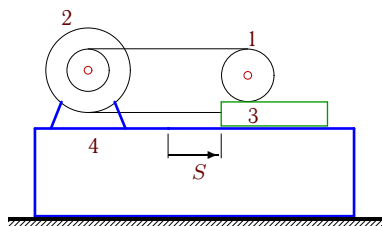
2



$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 2, \quad m_1 = 3, \quad m_2 = 12, \\ m_3 = 10, \quad m_4 = 12, \quad S = 74, \quad \alpha = \pi/3.$$

Задача D4.7.

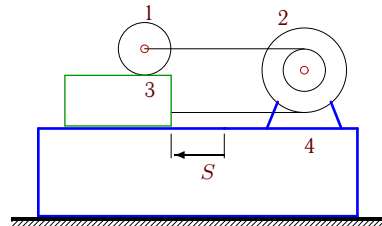
2



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 6, \quad m_2 = 10, \quad m_3 = 13, \\ m_4 = 13, \quad S = 42.$$

Задача D4.8.

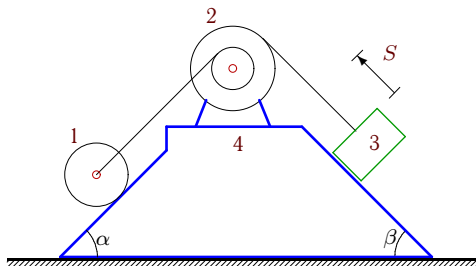
2



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 4, \quad m_2 = 15, \quad m_3 = 13, \\ m_4 = 15, \quad S = 141.$$

Задача D4.9.

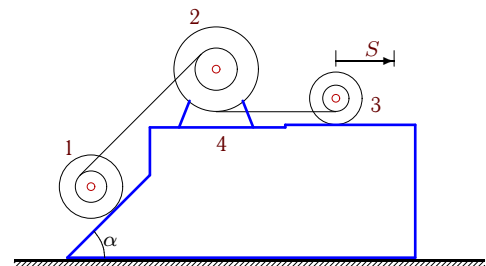
2



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 8, \quad m_2 = 15, \quad m_3 = 15, \\ m_4 = 15, \quad S = 159, \quad \alpha = \pi/3, \quad \cos \beta = 0,8.$$

Задача D4.10.

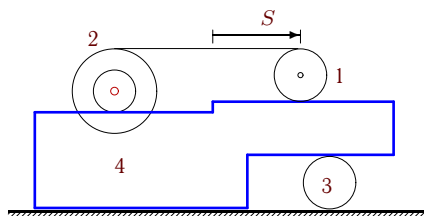
2



$$R_1 = 4, \quad r_1 = 3, \quad R_2 = 3, \quad r_2 = 2, \quad R_3 = 4, \quad r_3 = 2, \\ m_1 = 35, \quad m_2 = 13, \quad m_3 = 10, \quad m_4 = 13, \quad S = 142, \\ \cos \alpha = 0,6.$$

Задача D4.11.

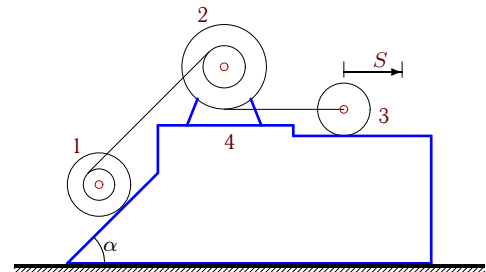
2



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 10, \quad m_2 = 10, \quad m_3 = 26, \\ m_4 = 12, \quad S = 45.$$

Задача D4.12.

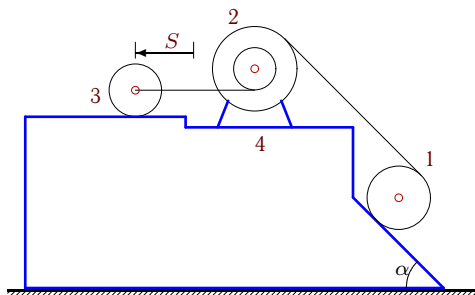
2



$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 12, \\ m_3 = 12, \quad m_4 = 13, \quad S = 141, \quad \cos \alpha = 0,6.$$

Задача D4.13.

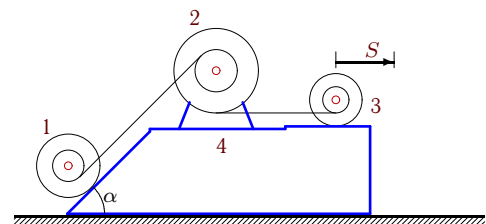
2



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 5, \quad m_2 = 15, \quad m_3 = 13, \\ m_4 = 15, \quad S = 144, \quad \cos \alpha = 0,8.$$

Задача D4.14.

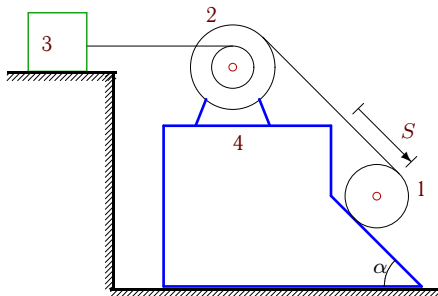
2



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 5, \quad r_2 = 3, \quad R_3 = 4, \quad r_3 = 3, \\ m_1 = 100, \quad m_2 = 10, \quad m_3 = 15, \quad m_4 = 15, \quad S = 140, \\ \cos \alpha = 0,6.$$

Задача D4.15.

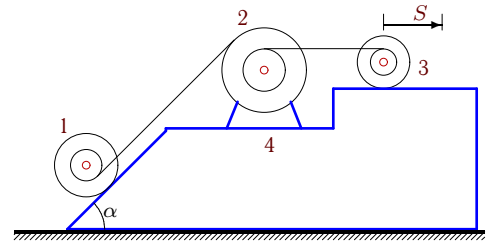
2



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 13, \quad m_3 = 2, \\ m_4 = 10, \quad S = 35, \quad \cos \alpha = 0,8.$$

Задача D4.16.

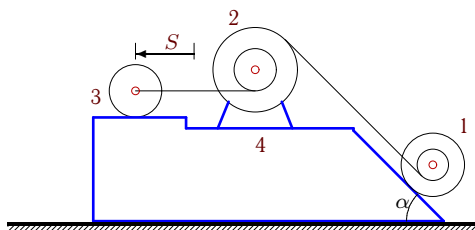
2



$$R_1 = 5, \quad r_1 = 3, \quad R_2 = 5, \quad r_2 = 3, \quad R_3 = 5, \quad r_3 = 3, \\ m_1 = 1, \quad m_2 = 15, \quad m_3 = 12, \quad m_4 = 15, \quad S = 129, \\ \cos \alpha = 0,6.$$

Задача D4.17.

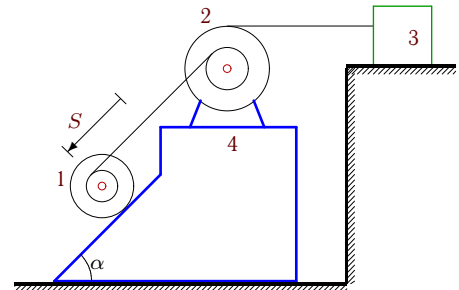
2



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 5, \quad m_2 = 13, \\ m_3 = 12, \quad m_4 = 13, \quad S = 86, \quad \cos \alpha = 0,8.$$

Задача D4.18.

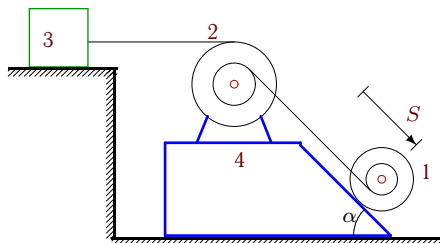
2



$$R_1 = 4, \quad r_1 = 3, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 5, \quad m_2 = 10, \\ m_3 = 3, \quad m_4 = 13, \quad S = 93, \quad \cos \alpha = 0,6.$$

Задача D4.19.

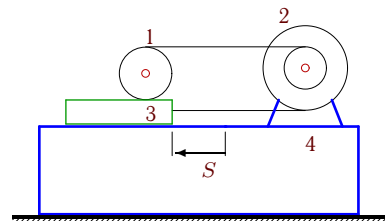
2



$$R_1 = 5, \quad r_1 = 3, \quad R_2 = 5, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 12, \\ m_3 = 6, \quad m_4 = 15, \quad S = 129, \quad \cos \alpha = 0,8.$$

Задача D4.20.

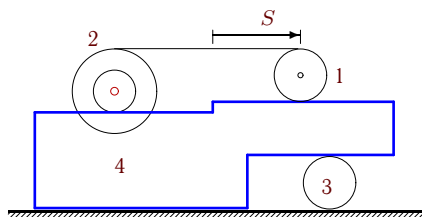
2



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 8, \quad m_2 = 13, \quad m_3 = 10, \\ m_4 = 12, \quad S = 43.$$

Задача D4.21.

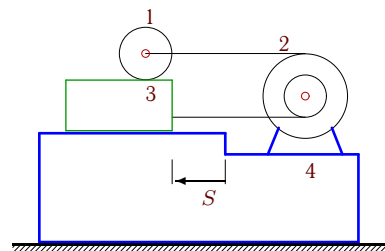
2



$$R_2 = 5, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 8, \quad m_3 = 26, \\ m_4 = 15, \quad S = 204.$$

Задача D4.22.

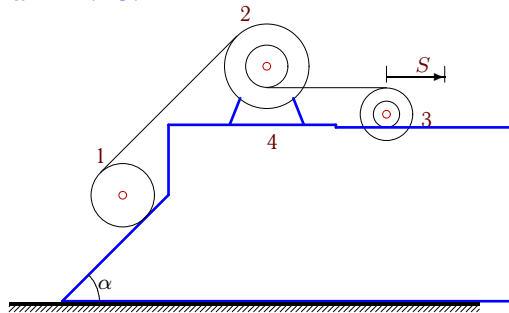
2



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 2, \quad m_2 = 10, \quad m_3 = 10, \\ m_4 = 10, \quad S = 96.$$

Задача D4.23.

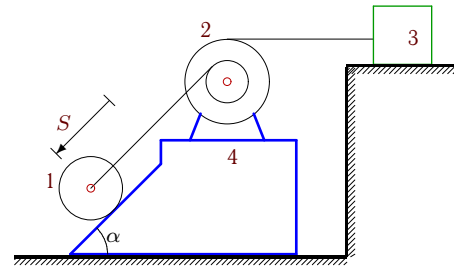
2



$R_2 = 4, r_2 = 2, R_3 = 5, r_3 = 3, m_1 = 5, m_2 = 10, m_3 = 10, m_4 = 15, S = 120, \cos \alpha = 0,6.$

Задача D4.24.

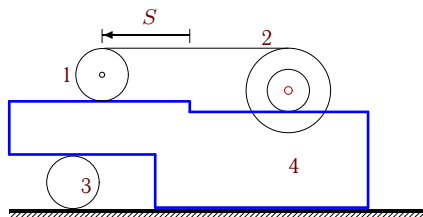
2



$R_2 = 3, r_2 = 2, m_1 = 5, m_2 = 13, m_3 = 2, m_4 = 10, S = 90, \cos \alpha = 0,6.$

Задача D4.25.

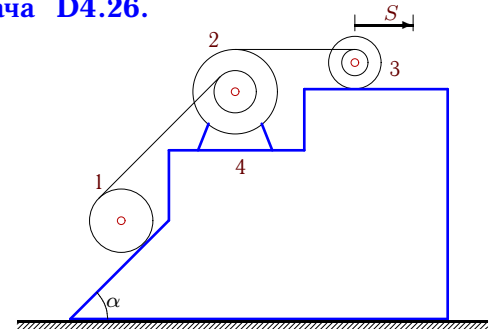
2



$R_2 = 5, r_2 = 3, m_1 = 15, m_2 = 8, m_3 = 26, m_4 = 15, S = 204.$

Задача D4.26.

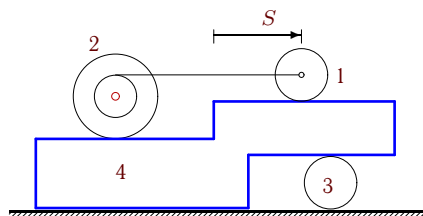
2



$R_2 = 3, r_2 = 2, R_3 = 4, r_3 = 3, m_1 = 20, m_2 = 10, m_3 = 10, m_4 = 10, S = 150, \cos \alpha = 0,6.$

Задача D4.27.

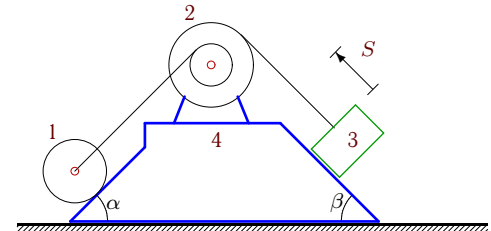
2



$R_2 = 4, r_2 = 2, m_1 = 13, m_2 = 4, m_3 = 30, m_4 = 13, S = 135.$

Задача D4.28.

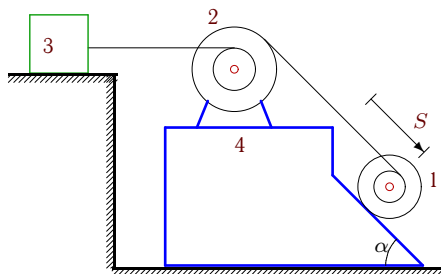
2



$R_2 = 5, r_2 = 3, m_1 = 20, m_2 = 12, m_3 = 4, m_4 = 12, S = 144, \alpha = \pi/3, \beta = \pi/3.$

Задача D4.29.

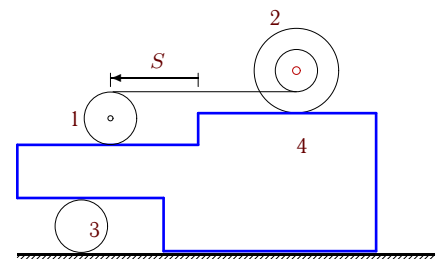
2



$R_1 = 3, r_1 = 2, R_2 = 4, r_2 = 2, m_1 = 5, m_2 = 13, m_3 = 12, m_4 = 12, S = 42, \cos \alpha = 0,8.$

Задача D4.30.

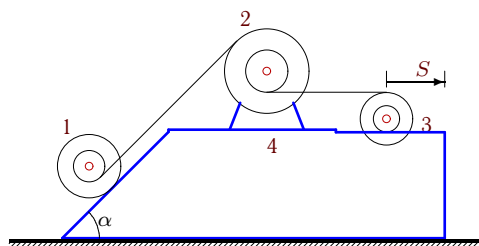
2



$R_2 = 4, r_2 = 2, m_1 = 10, m_2 = 2, m_3 = 20, m_4 = 13, S = 70.$

Задача D4.31.

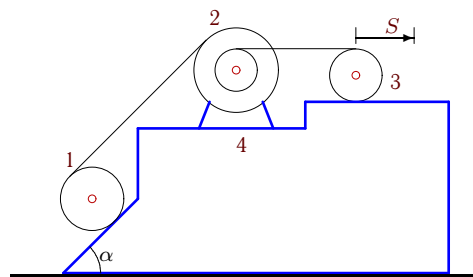
2



$R_1 = 4, r_1 = 2, R_2 = 4, r_2 = 3, R_3 = 4, r_3 = 3,$
 $m_1 = 9, m_2 = 15, m_3 = 12, m_4 = 13, S = 98,$
 $\alpha = \pi/3.$

Задача D4.32.

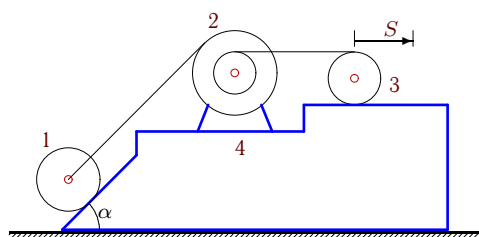
2



$R_2 = 3, r_2 = 2, m_1 = 10, m_2 = 12, m_3 = 13,$
 $m_4 = 13, S = 144, \cos \alpha = 0,6.$

Задача D4.33.

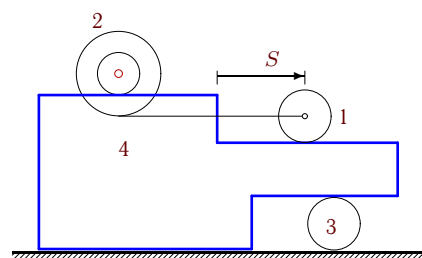
2



$R_2 = 5, r_2 = 3, m_1 = 3, m_2 = 10, m_3 = 15,$
 $m_4 = 12, S = 120, \alpha = \pi/3.$

Задача D4.34.

2



$R_2 = 5, r_2 = 3, m_1 = 12, m_2 = 20, m_3 = 26,$
 $m_4 = 12, S = 171.$

D4 Ответы.
Теорема о центре масс системы

26.08.2012

№	Δ_4
1	54
2	21
3	33
4	69
5	100
6	18
7	14
8	33
9	42
10	12
11	22
12	27
13	27
14	12
15	11
16	48
17	8
18	30
19	36
20	12
21	100
22	21
23	6
24	18
25	100
26	51
27	51
28	24
29	14
30	36
31	32
32	66
33	60
34	66

D4 файл o4d2A