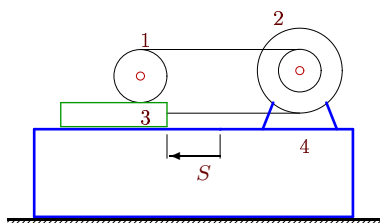


## Теорема о центре масс системы

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 D-4.1.**

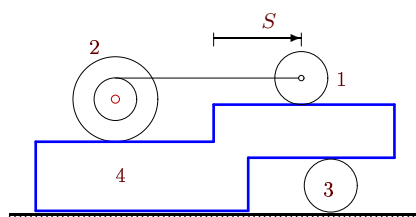
1



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 6, \quad m_2 = 12, \quad m_3 = 10, \\ m_4 = 13, \quad S = 123.$$

**Задача D-4.2.**

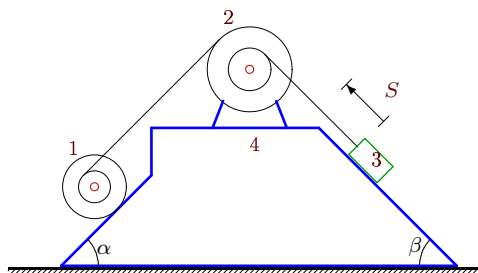
1



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 10, \quad m_2 = 12, \quad m_3 = 24, \\ m_4 = 10, \quad S = 88.$$

**Задача D-4.3.**

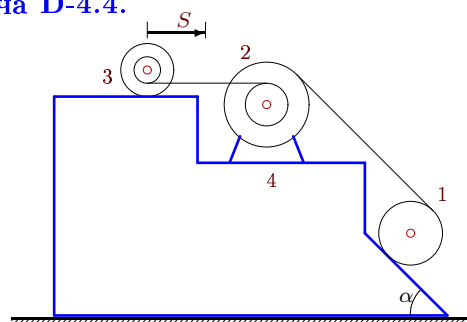
1



$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 2, \quad m_1 = 6, \quad m_2 = 12, \\ m_3 = 6, \quad m_4 = 12, \quad S = 108, \quad \alpha = \beta = \pi/3.$$

**Задача D-4.4.**

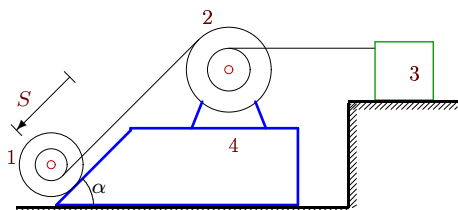
1



$$R_2 = 4, \quad r_2 = 3, \quad R_3 = 4, \quad r_3 = 2, \quad m_1 = 15, \quad m_2 = 15, \\ m_3 = 15, \quad m_4 = 13, \quad S = 116, \quad \cos \alpha = 0,8.$$

**Задача D-4.5.**

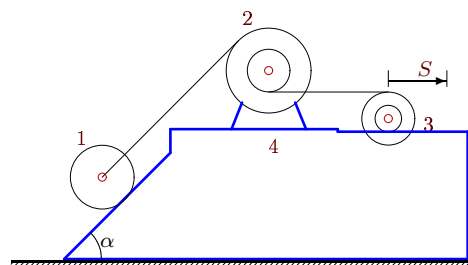
1



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad m_1 = 5, \quad m_2 = 13, \\ m_3 = 18, \quad m_4 = 13, \quad S = 98, \quad \cos \alpha = 0,6.$$

**Задача D-4.6.**

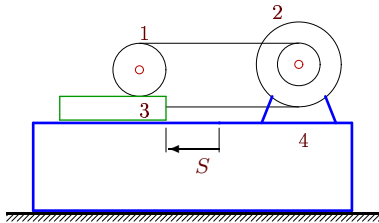
1



$$R_2 = 5, \quad r_2 = 3, \quad R_3 = 5, \quad r_3 = 3, \quad m_1 = 9, \quad m_2 = 15, \\ m_3 = 15, \quad m_4 = 15, \quad S = 216, \quad \alpha = \pi/3.$$

Задача D-4.7.

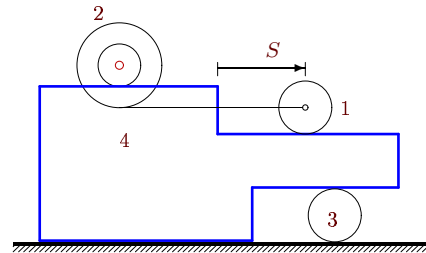
1



$$R_2 = 5, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 13, \quad m_3 = 12, \\ m_4 = 12, \quad S = 47.$$

Задача D-4.8.

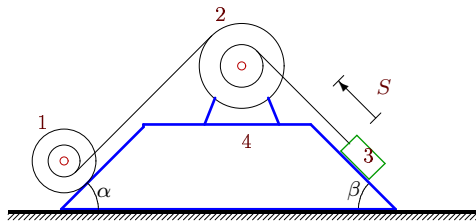
1



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 2, \quad m_3 = 20, \\ m_4 = 10, \quad S = 111.$$

Задача D-4.9.

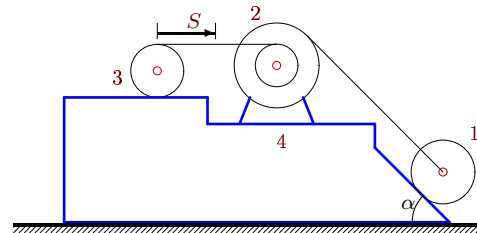
1



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad m_1 = 4, \quad m_2 = 13, \\ m_3 = 8, \quad m_4 = 10, \quad S = 70, \quad \alpha = \pi/3, \quad \beta = \pi/3.$$

Задача D-4.10.

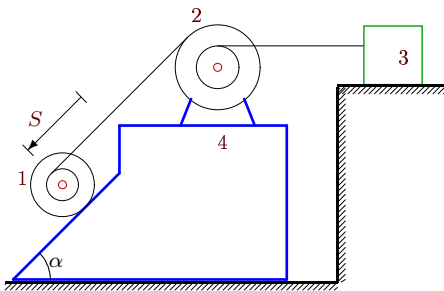
1



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 13, \quad m_3 = 12, \\ m_4 = 10, \quad S = 100, \quad \cos \alpha = 0,8.$$

Задача D-4.11.

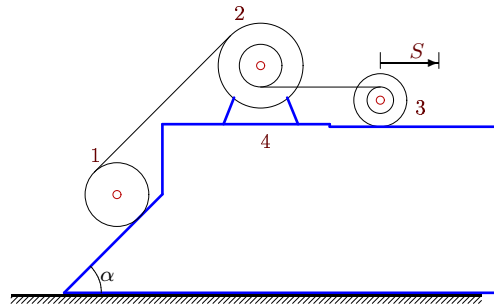
1



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad m_1 = 10, \quad m_2 = 13, \\ m_3 = 9, \quad m_4 = 10, \quad S = 42, \quad \cos \alpha = 0,6.$$

Задача D-4.12.

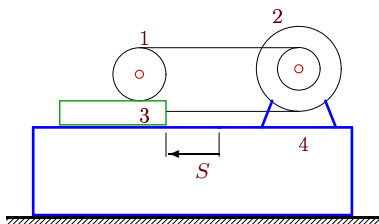
1



$$R_2 = 5, \quad r_2 = 3, \quad R_3 = 4, \quad r_3 = 2, \quad m_1 = 8, \quad m_2 = 12, \\ m_3 = 15, \quad m_4 = 15, \quad S = 150, \quad \alpha = \pi/3.$$

Задача D-4.13.

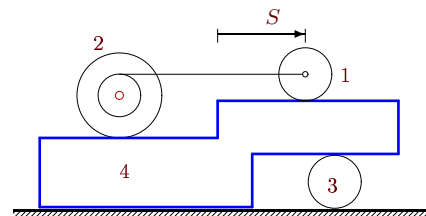
1



$$R_2 = 5, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 13, \quad m_3 = 15, \\ m_4 = 12, \quad S = 100.$$

Задача D-4.14.

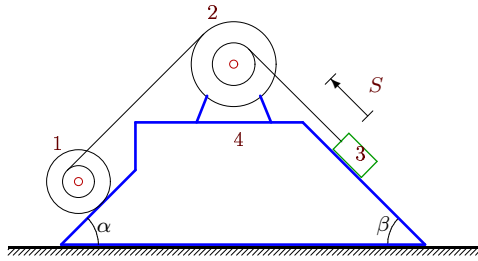
1



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 10, \quad m_2 = 5, \quad m_3 = 20, \\ m_4 = 13, \quad S = 38.$$

Задача D-4.15.

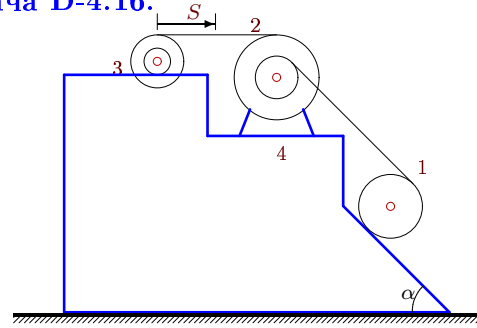
1



$$R_1 = 4, r_1 = 3, R_2 = 3, r_2 = 2, m_1 = 7, m_2 = 10, m_3 = 4, m_4 = 13, S = 68, \alpha = \pi/3, \beta = \pi/3.$$

Задача D-4.16.

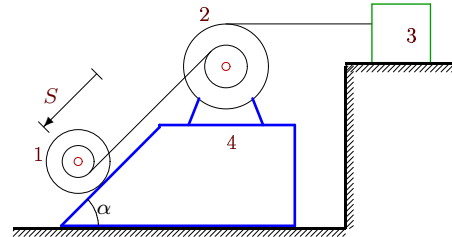
1



$$R_2 = 4, r_2 = 3, R_3 = 4, r_3 = 3, m_1 = 10, m_2 = 15, m_3 = 15, m_4 = 13, S = 106, \cos \alpha = 0,8.$$

Задача D-4.17.

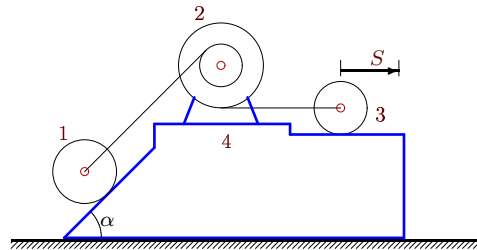
1



$$R_1 = 4, r_1 = 2, R_2 = 3, r_2 = 2, m_1 = 5, m_2 = 12, m_3 = 8, m_4 = 10, S = 105, \cos \alpha = 0,6.$$

Задача D-4.18.

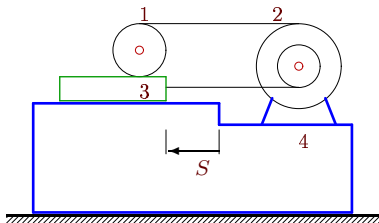
1



$$R_2 = 3, r_2 = 2, m_1 = 3, m_2 = 13, m_3 = 13, m_4 = 10, S = 78, \alpha = \pi/3.$$

Задача D-4.19.

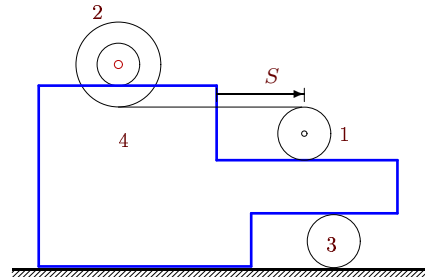
1



$$R_2 = 5, r_2 = 3, m_1 = 6, m_2 = 12, m_3 = 12, m_4 = 12, S = 84.$$

Задача D-4.20.

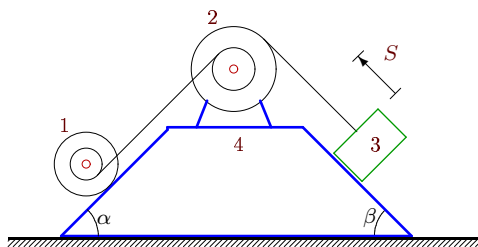
1



$$R_2 = 4, r_2 = 2, m_1 = 10, m_2 = 2, m_3 = 26, m_4 = 15, S = 80.$$

Задача D-4.21.

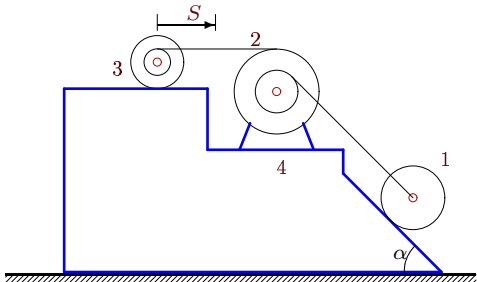
1



$$R_1 = 3, r_1 = 2, R_2 = 4, r_2 = 3, m_1 = 16, m_2 = 13, m_3 = 15, m_4 = 10, S = 54, \alpha = \pi/3, \cos \beta = 0,8.$$

Задача D-4.22.

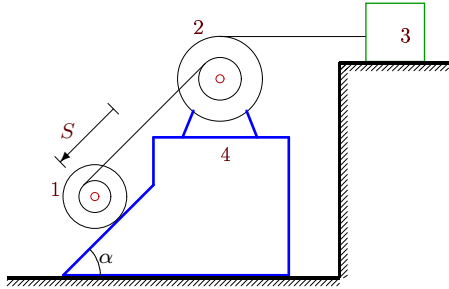
1



$$R_2 = 4, r_2 = 3, R_3 = 5, r_3 = 3, m_1 = 25, m_2 = 10, m_3 = 12, m_4 = 10, S = 114, \cos \alpha = 0,8.$$

Задача D-4.23.

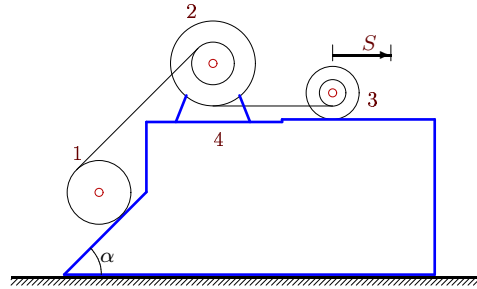
1



$R_1 = 3, r_1 = 2, R_2 = 5, r_2 = 3, m_1 = 10, m_2 = 10,$   
 $m_3 = 18, m_4 = 12, S = 50, \cos \alpha = 0,6.$

Задача D-4.24.

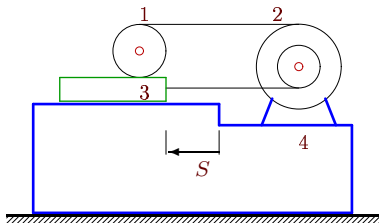
1



$R_2 = 3, r_2 = 2, R_3 = 5, r_3 = 3, m_1 = 15, m_2 = 12,$   
 $m_3 = 13, m_4 = 10, S = 150, \alpha = \pi/3.$

Задача D-4.25.

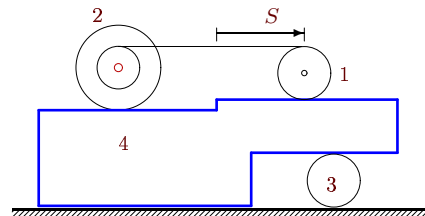
1



$R_2 = 5, r_2 = 3, m_1 = 6, m_2 = 10, m_3 = 15,$   
 $m_4 = 15, S = 138.$

Задача D-4.26.

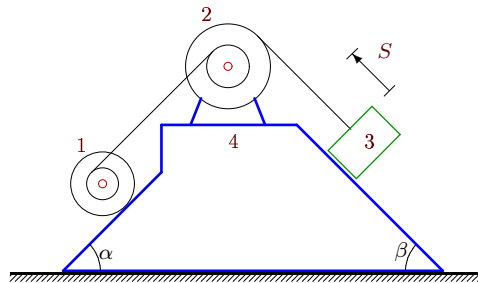
1



$R_2 = 4, r_2 = 2, m_1 = 10, m_2 = 6, m_3 = 26,$   
 $m_4 = 12, S = 82.$

Задача D-4.27.

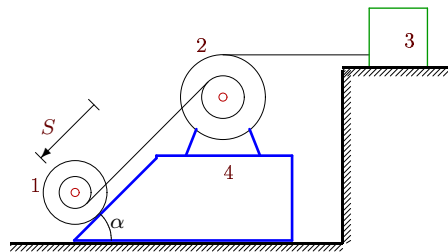
1



$R_1 = 5, r_1 = 3, R_2 = 4, r_2 = 3, m_1 = 64, m_2 = 12,$   
 $m_3 = 10, m_4 = 13, S = 297, \alpha = \pi/3, \cos \beta = 0,6.$

Задача D-4.28.

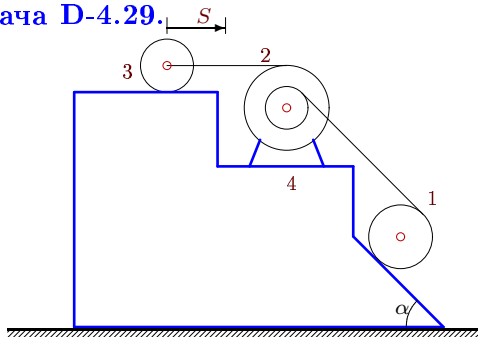
1



$R_1 = 4, r_1 = 3, R_2 = 5, r_2 = 3, m_1 = 5, m_2 = 10,$   
 $m_3 = 24, m_4 = 15, S = 162, \cos \alpha = 0,6.$

Задача D-4.29.

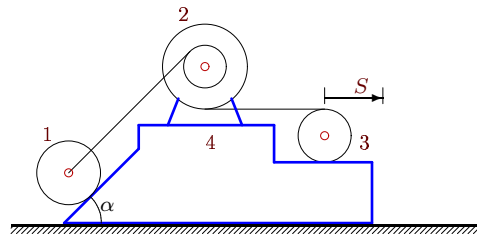
1



$R_2 = 3, r_2 = 2, m_1 = 15, m_2 = 12, m_3 = 13,$   
 $m_4 = 10, S = 100, \cos \alpha = 0,8.$

Задача D-4.30.

1



$R_2 = 4, r_2 = 3, m_1 = 4, m_2 = 13, m_3 = 15,$   
 $m_4 = 13, S = 90, \alpha = \pi/3.$

D-4

Отвѣты.

№	$\Delta_4$
1	33
2	36
3	21
4	38
5	14
6	20
7	14
8	27
9	26
10	88
11	16
12	30
13	34
14	13
15	10
16	44
17	27
18	24
19	20
20	12
21	30
22	72
23	56
24	36
25	39
26	36
27	63
28	39
29	34
30	24

D-4 файл 4d1-AnsA