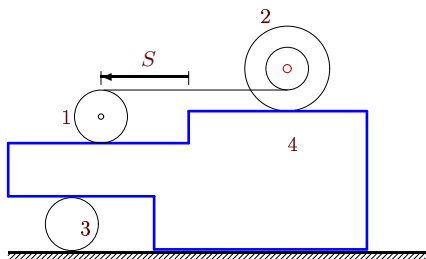


Теорема о центре масс системы

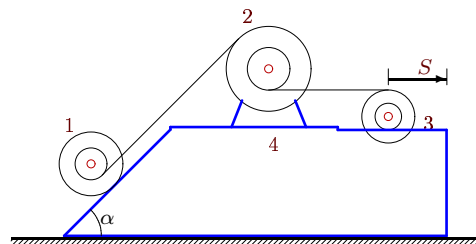
Механизм, состоящий из трех тел, установлен на призме, скользящей по гладкой плоскости. Нити, соединяющие тела, параллельны плоскостям. Под действием внутренних сил из состояния покоя механизм пришел в движение. Центр цилиндра (блока) или бруска сместился относительно призмы на расстояние S . Найти смещение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

Задача D-4.1. *Аленичкин Александр*



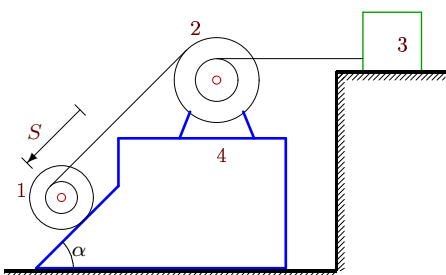
$$R_2 = 5, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 2, \quad m_3 = 24, \\ m_4 = 10, \quad S = 156.$$

Задача D-4.2. *Белый Алексей*



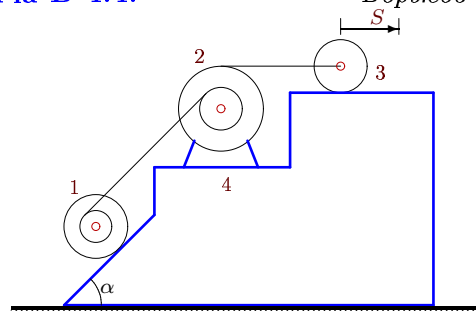
$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad R_3 = 5, \quad r_3 = 3, \\ m_1 = 1, \quad m_2 = 15, \quad m_3 = 10, \quad m_4 = 13, \quad S = 78, \\ \alpha = \pi/3.$$

Задача D-4.3. *Бирюков Антон*



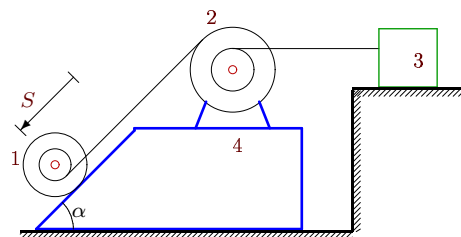
$$R_1 = 4, \quad r_1 = 3, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 4, \quad m_2 = 10, \\ m_3 = 16, \quad m_4 = 13, \quad S = 129, \quad \alpha = \pi/3.$$

Задача D-4.4. *Боржов Роман*



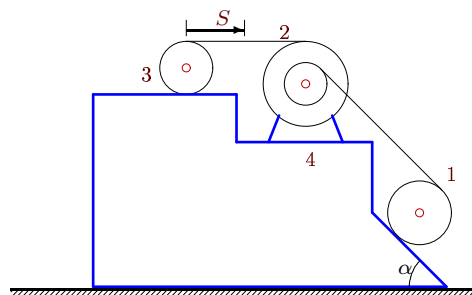
$$R_1 = 4, \quad r_1 = 3, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 35, \quad m_2 = 13, \\ m_3 = 15, \quad m_4 = 10, \quad S = 219, \quad \cos \alpha = 0,6.$$

Задача D-4.5. *Галустов Владимир*



$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 3, \quad m_1 = 10, \quad m_2 = 12, \\ m_3 = 16, \quad m_4 = 10, \quad S = 96, \quad \cos \alpha = 0,6.$$

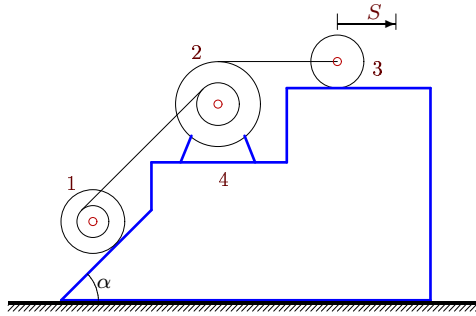
Задача D-4.6. *Дмитриева Марина*



$$R_2 = 3, \quad r_2 = 2, \quad m_1 = 15, \quad m_2 = 15, \quad m_3 = 13, \\ m_4 = 10, \quad S = 159, \quad \cos \alpha = 0,8.$$

Задача D-4.7.

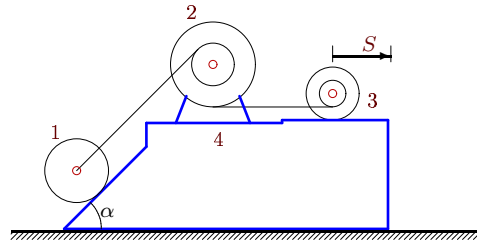
Ельникова Ирина



$R_1 = 3, r_1 = 2, R_2 = 3, r_2 = 2, m_1 = 5, m_2 = 13,$
 $m_3 = 13, m_4 = 10, S = 82, \alpha = \pi/3.$

Задача D-4.8.

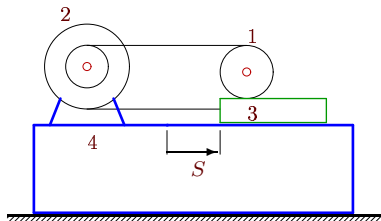
Кильдиватова Полина



$R_2 = 3, r_2 = 2, R_3 = 4, r_3 = 2, m_1 = 5, m_2 = 10,$
 $m_3 = 13, m_4 = 13, S = 82, \cos \alpha = 0,6.$

Задача D-4.9.

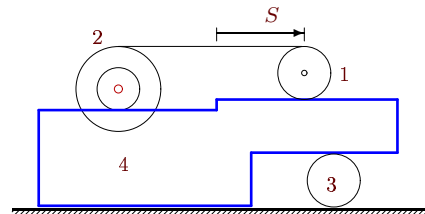
Кильчанов Сергей



$R_2 = 5, r_2 = 3, m_1 = 10, m_2 = 15, m_3 = 12,$
 $m_4 = 12, S = 98.$

Задача D-4.10.

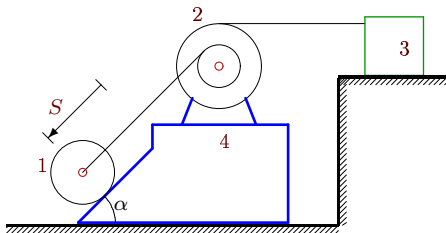
Коннов Сергей



$R_2 = 4, r_2 = 3, m_1 = 15, m_2 = 14, m_3 = 30,$
 $m_4 = 10, S = 162.$

Задача D-4.11.

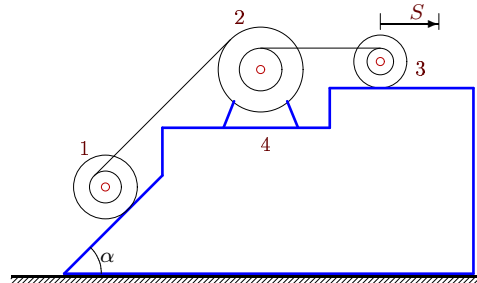
Красненко Дарья



$R_2 = 3, r_2 = 2, m_1 = 4, m_2 = 12, m_3 = 4,$
 $m_4 = 13, S = 132, \alpha = \pi/3.$

Задача D-4.12.

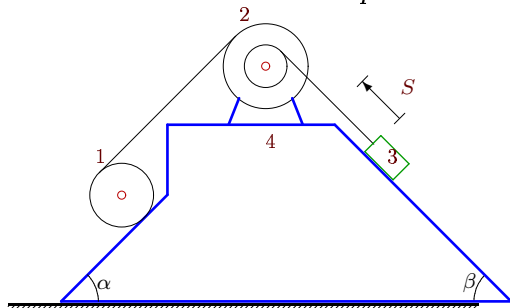
Крупинин Андрей



$R_1 = 5, r_1 = 3, R_2 = 4, r_2 = 2, R_3 = 5, r_3 = 3,$
 $m_1 = 1, m_2 = 15, m_3 = 10, m_4 = 15, S = 164,$
 $\alpha = \pi/3.$

Задача D-4.13.

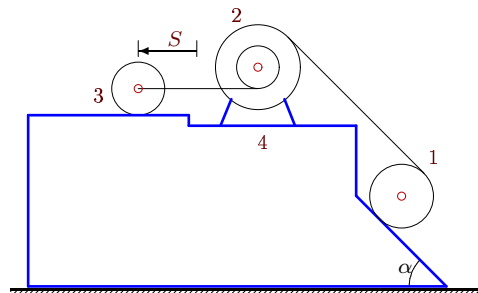
Миргасов Алексей



$R_2 = 4, r_2 = 2, m_1 = 5, m_2 = 12, m_3 = 5,$
 $m_4 = 12, S = 68, \cos \alpha = 0,6, \cos \beta = 0,8.$

Задача D-4.14.

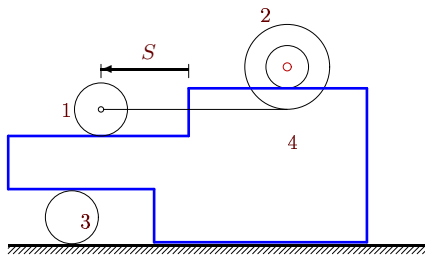
Миронова Дарья



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

Задача D-4.15.

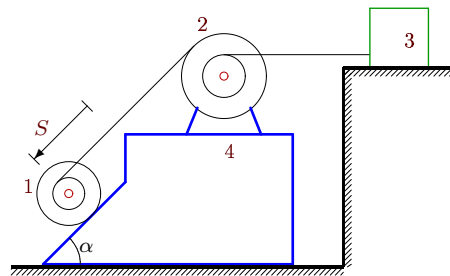
Набиев Артур



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 10, \quad m_2 = 4, \quad m_3 = 26, \\ m_4 = 13, \quad S = 80.$$

Задача D-4.16.

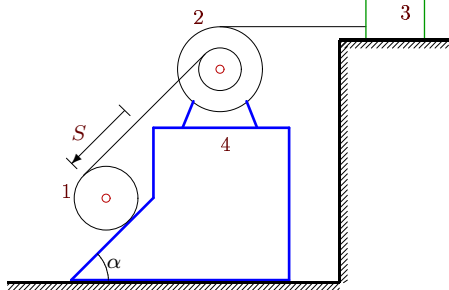
Назаренко Анастасия



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad m_1 = 2, \quad m_2 = 10, \\ m_3 = 9, \quad m_4 = 10, \quad S = 31, \quad \alpha = \pi/3.$$

Задача D-4.17.

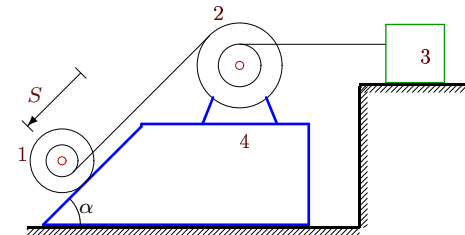
Ни Владислав



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 5, \quad m_2 = 15, \quad m_3 = 3, \\ m_4 = 13, \quad S = 144, \quad \cos \alpha = 0,6.$$

Задача D-4.18.

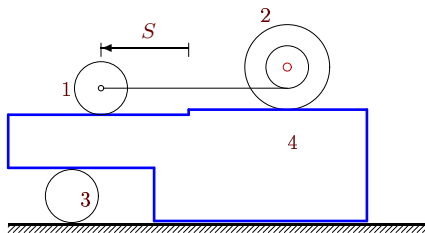
Сергеев Михаил



$$R_1 = 4, \quad r_1 = 2, \quad R_2 = 3, \quad r_2 = 2, \quad m_1 = 4, \quad m_2 = 12, \\ m_3 = 3, \quad m_4 = 13, \quad S = 96, \quad \alpha = \pi/3.$$

Задача D-4.19.

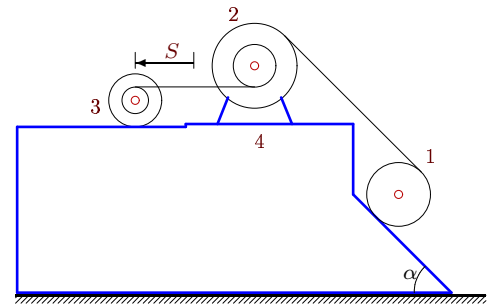
Скляренко Никита



$$R_2 = 4, \quad r_2 = 2, \quad m_1 = 13, \quad m_2 = 4, \quad m_3 = 24, \\ m_4 = 13, \quad S = 126.$$

Задача D-4.20.

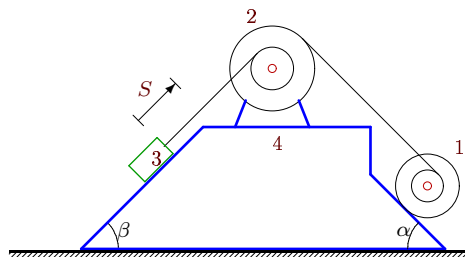
Филатов Иван



$$R_2 = 4, \quad r_2 = 3, \quad R_3 = 4, \quad r_3 = 2, \quad m_1 = 5, \quad m_2 = 13, \\ m_3 = 15, \quad m_4 = 13, \quad S = 92, \quad \cos \alpha = 0,8.$$

Задача D-4.21.

Шеповаленко Ангелина



$$R_1 = 3, \quad r_1 = 2, \quad R_2 = 4, \quad r_2 = 2, \quad m_1 = 50, \quad m_2 = 10, \\ m_3 = 4, \quad m_4 = 15, \quad S = 158, \quad \cos \alpha = 0,8, \quad \beta = \pi/3.$$