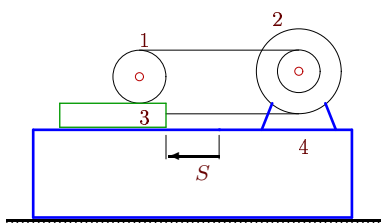


Теорема о центре масс системы

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.

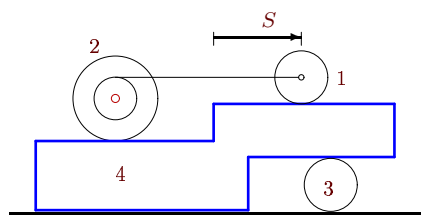
Хазеков Максим



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

Задача D-4.2.

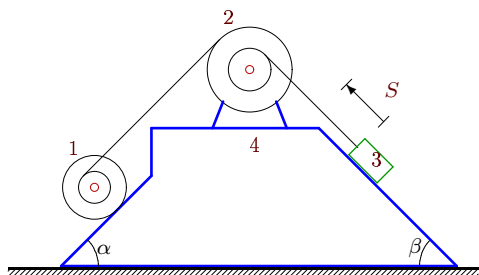
Голубовская Диана



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

Задача D-4.3.

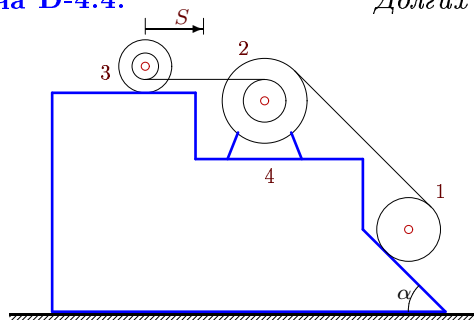
Гонсоронов Дамба



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

Задача D-4.4.

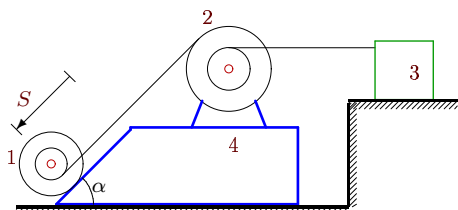
Долгих Дарья



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

Задача D-4.5.

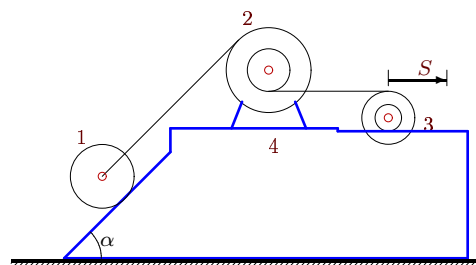
Звягинцева Алёна



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

Задача D-4.6.

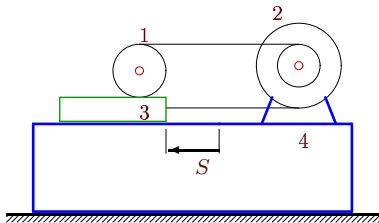
Зогина Екатерина



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

Задача D-4.7.

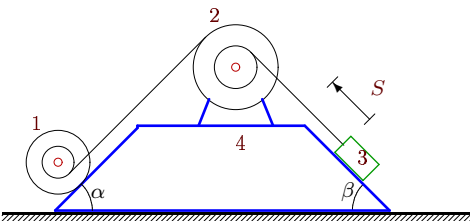
Исаков Александр



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

Задача D-4.9.

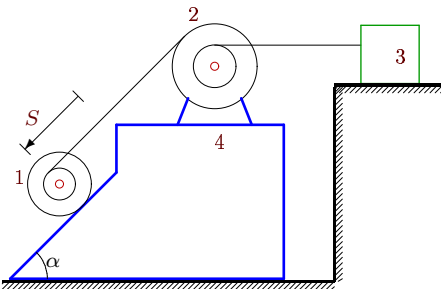
Лошакова Алина



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

Задача D-4.11.

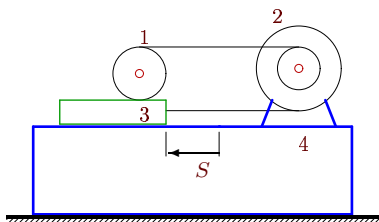
Нечаев Алексей



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

Задача D-4.13.

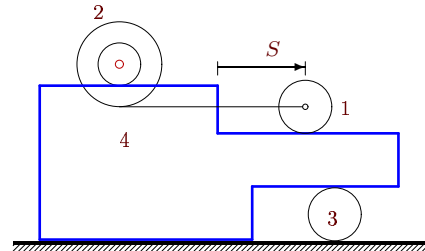
Попов Максим



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

Задача D-4.8.

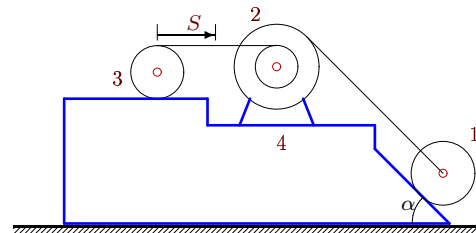
Кобалия Давид



$$R_2 = 4, \quad r_2 = 3, \quad m_1 = 15, \quad m_2 = 6, \quad m_3 = 20, \\ m_4 = 10, \quad S = 123.$$

Задача D-4.10.

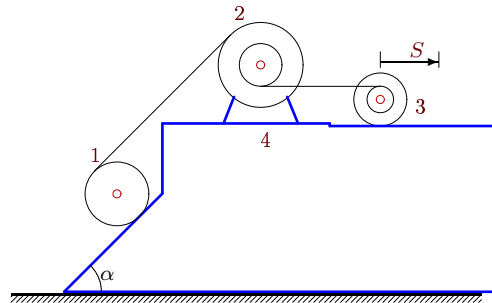
Молчанов Леонид



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

Задача D-4.12.

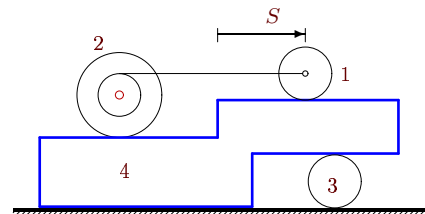
Павлов Алексей



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

Задача D-4.14.

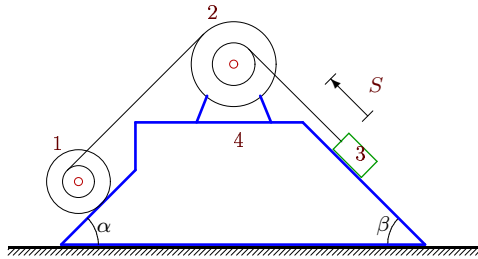
Рябов Максим



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

Задача D-4.15.

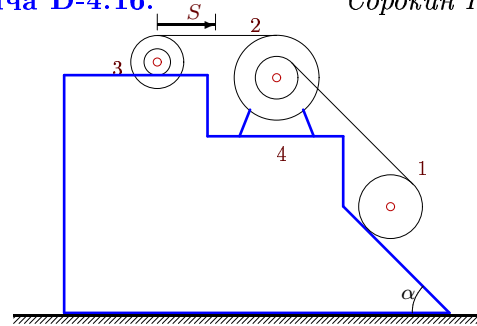
Семен Евгений



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

Задача D-4.16.

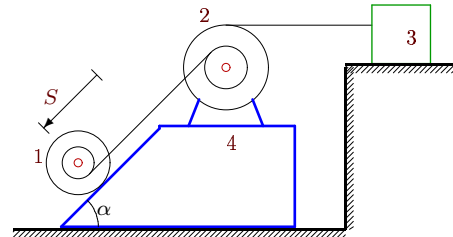
Сорокин Никита



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

Задача D-4.17.

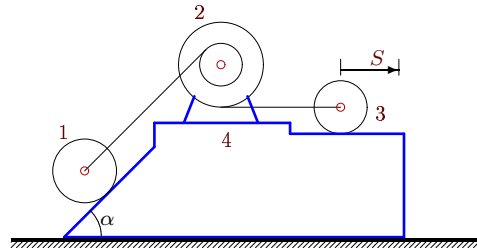
Сучков Павел



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

Задача D-4.18.

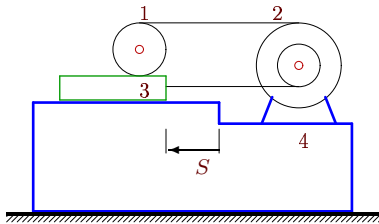
Федорова Кристина



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

Задача D-4.19.

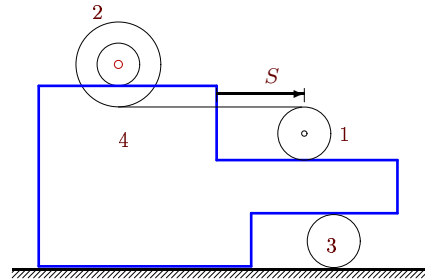
Харизин Павел



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

Задача D-4.20.

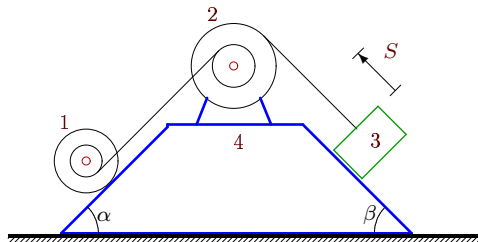
Цой Алексей



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

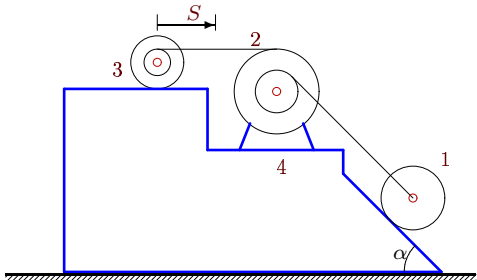
Задача D-4.21.

Чичкань Иван



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

Задача D-4.22.



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