

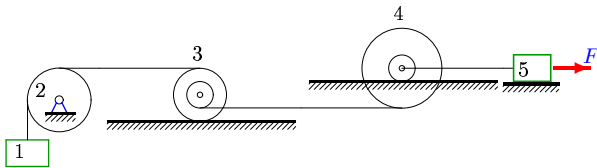
# Кинетическая энергия системы. Приведенные массы

Механическая система, состоящая из пяти тел 1, 2, 3, 4 и 5, движется под действием внешних сил. Заданы радиусы цилиндров и блоков. Радиусы инерции  $\rho$  даны для блоков, цилиндры считать однородными. Горизонтальный стержень, находящийся в зацеплении с блоками, считать невесомым. Массы даны в килограммах, радиусы — в сантиметрах. Вычислить приведенную массу системы  $\mu$  в формуле  $T = \mu v_1^2/2$ , где  $v_1$  — скорость груза 1 (или центра цилиндра 1).

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

## Задача D-33.1.

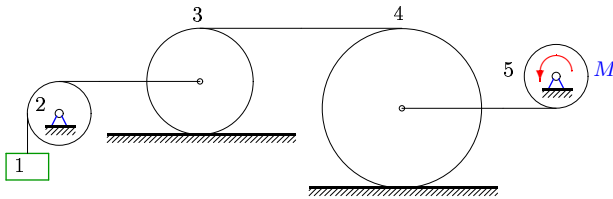
Акперов Эмиль



$$\begin{aligned} R_3 &= 2, r_3 = 1, \rho_3 = 1, \\ R_4 &= 3, r_4 = 1, \rho_4 = 2, \\ m_1 &= 14, m_2 = 10, \\ m_3 &= 96, m_4 = 320, \\ m_5 &= 256. \end{aligned}$$

## Задача D-33.2.

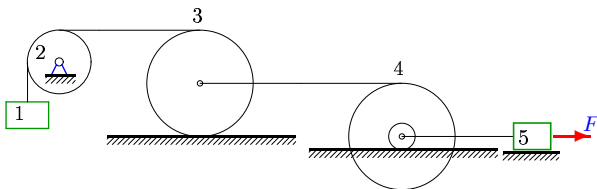
Алексеев Максим



$$\begin{aligned} R_3 &= 4, \\ R_4 &= 6, \\ m_1 &= 7, m_2 = 6, \\ m_3 &= 8, m_4 = 6, \\ m_5 &= 4. \end{aligned}$$

## Задача D-33.3.

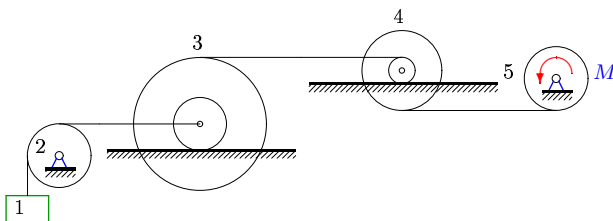
Архипова Евгения



$$\begin{aligned} R_3 &= 4, \\ R_4 &= 4, r_4 = 1, \rho_4 = 3, \\ m_1 &= 11, m_2 = 8, \\ m_3 &= 32, m_4 = 30, \\ m_5 &= 100. \end{aligned}$$

## Задача D-33.4.

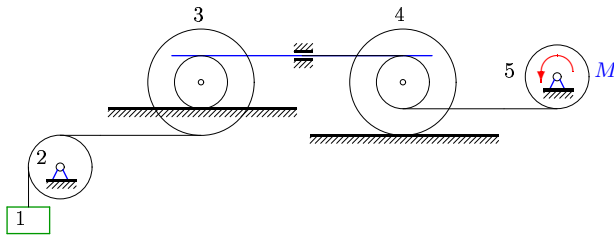
Борисов Илья



$$\begin{aligned} R_3 &= 5, r_3 = 2, \rho_3 = 4, \\ R_4 &= 3, r_4 = 1, \rho_4 = 2, \\ m_1 &= 18, m_2 = 4, \\ m_3 &= 4, m_4 = 16, \\ m_5 &= 16. \end{aligned}$$

Задача D-33.5.

Горюнов Антон



$$R_3 = 4, r_3 = 2, \rho_3 = 3,$$

$$R_4 = 4, r_4 = 2, \rho_4 = 3,$$

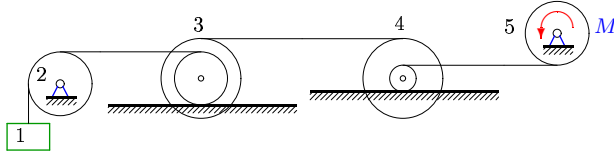
$$m_1 = 16, m_2 = 10,$$

$$m_3 = 16, m_4 = 27,$$

$$m_5 = 36.$$

Задача D-33.6.

Давтян Инга



$$R_3 = 3, r_3 = 2, \rho_3 = 2,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

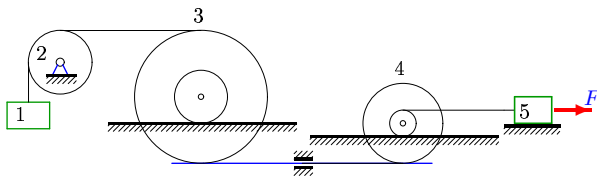
$$m_1 = 13, m_2 = 4,$$

$$m_3 = 8, m_4 = 256,$$

$$m_5 = 128.$$

Задача D-33.7.

Дзядевич Дмитрий



$$R_3 = 5, r_3 = 2, \rho_3 = 4,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

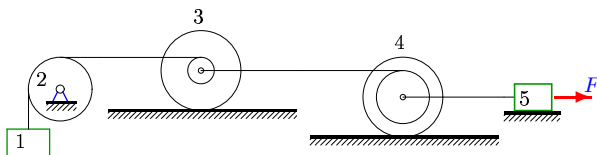
$$m_1 = 19, m_2 = 4,$$

$$m_3 = 196, m_4 = 196,$$

$$m_5 = 98.$$

Задача D-33.8.

Ефимов Василий



$$R_3 = 3, r_3 = 1, \rho_3 = 2,$$

$$R_4 = 3, r_4 = 2, \rho_4 = 2,$$

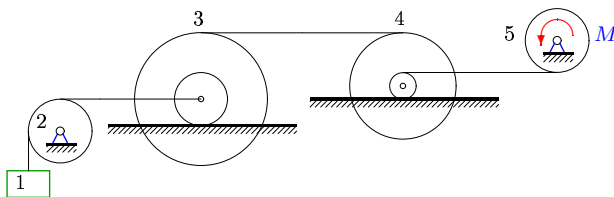
$$m_1 = 9, m_2 = 12,$$

$$m_3 = 64, m_4 = 400,$$

$$m_5 = 400.$$

Задача D-33.9.

Савельев Никита



$$R_3 = 5, r_3 = 2, \rho_3 = 4,$$

$$R_4 = 4, r_4 = 1, \rho_4 = 3,$$

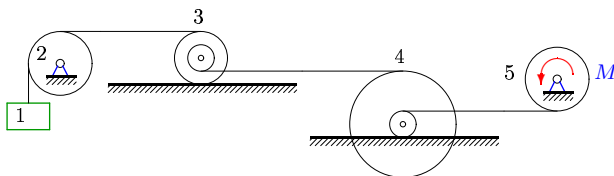
$$m_1 = 17, m_2 = 8,$$

$$m_3 = 7, m_4 = 60,$$

$$m_5 = 250.$$

Задача D-33.10.

Захаров Алексей



$$R_3 = 2, r_3 = 1, \rho_3 = 1,$$

$$R_4 = 4, r_4 = 1, \rho_4 = 3,$$

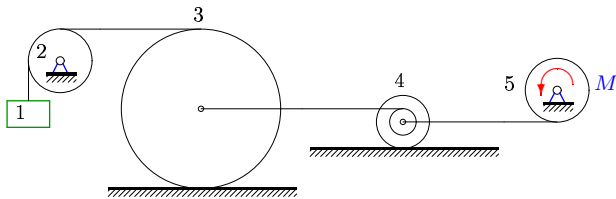
$$m_1 = 9, m_2 = 6,$$

$$m_3 = 64, m_4 = 120,$$

$$m_5 = 200.$$

Задача D-33.11.

Золотых Дмитрий



$$R_3 = 6,$$

$$R_4 = 2, r_4 = 1, \rho_4 = 1,$$

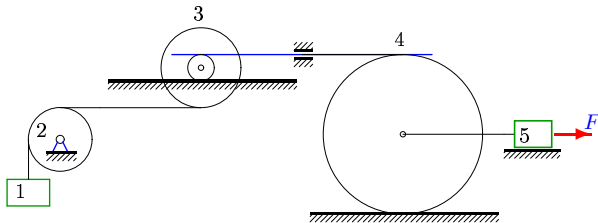
$$m_1 = 8, m_2 = 12,$$

$$m_3 = 32, m_4 = 108,$$

$$m_5 = 36.$$

Задача D-33.12.

Бондаренко Дарья



$$R_3 = 3, r_3 = 1, \rho_3 = 2,$$

$$R_4 = 6,$$

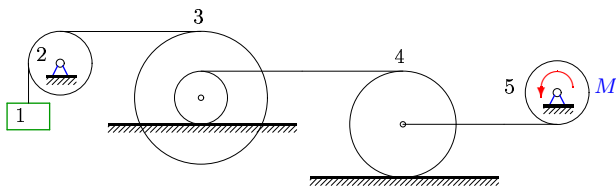
$$m_1 = 14, m_2 = 6,$$

$$m_3 = 16, m_4 = 24,$$

$$m_5 = 8.$$

Задача D-33.13.

Зяблицын Даниил



$$R_3 = 5, r_3 = 2, \rho_3 = 4,$$

$$R_4 = 4,$$

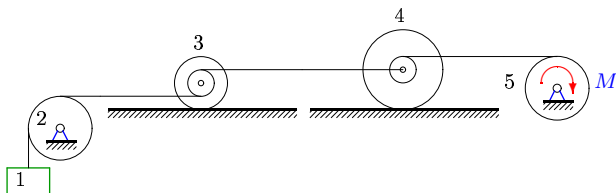
$$m_1 = 11, m_2 = 6,$$

$$m_3 = 245, m_4 = 196,$$

$$m_5 = 294.$$

Задача D-33.14.

Кирюхин Антон



$$R_3 = 2, r_3 = 1, \rho_3 = 1,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

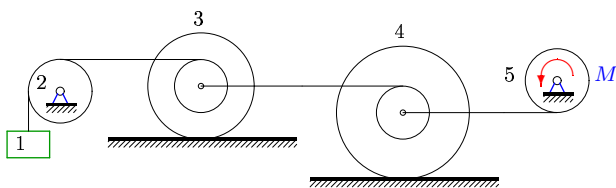
$$m_1 = 10, m_2 = 4,$$

$$m_3 = 4, m_4 = 3,$$

$$m_5 = 4.$$

Задача D-33.15.

Мамонов Богдан



$$R_3 = 4, r_3 = 2, \rho_3 = 3,$$

$$R_4 = 5, r_4 = 2, \rho_4 = 4,$$

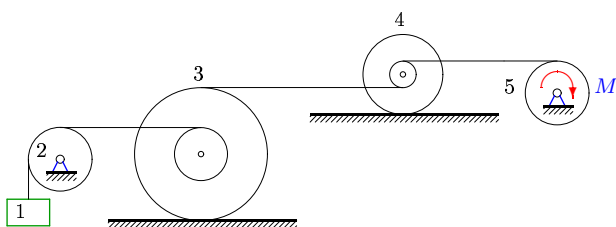
$$m_1 = 12, m_2 = 8,$$

$$m_3 = 252, m_4 = 441,$$

$$m_5 = 882.$$

Задача D-33.16.

Молдареева Мария



$$R_3 = 5, r_3 = 2, \rho_3 = 4,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

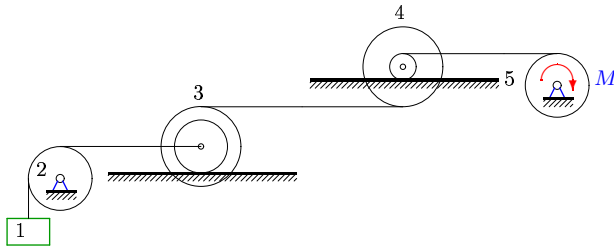
$$m_1 = 10, m_2 = 10,$$

$$m_3 = 343, m_4 = 49,$$

$$m_5 = 98.$$

**Задача D-33.17.**

*Морозов Максим*



$$R_3 = 3, r_3 = 2, \rho_3 = 2,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

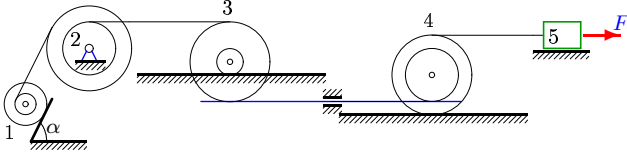
$$m_1 = 18, m_2 = 4,$$

$$m_3 = 4, m_4 = 16,$$

$$m_5 = 16.$$

**Задача D-33.18.**

*Мурушкин Сергей*



$$R_1 = 2, r_1 = 1, \rho_1 = 1,$$

$$R_2 = 3, r_2 = 2, \rho_2 = 3,$$

$$R_3 = 3, r_3 = 1, \rho_3 = 2,$$

$$R_4 = 3, r_4 = 2, \rho_4 = 2,$$

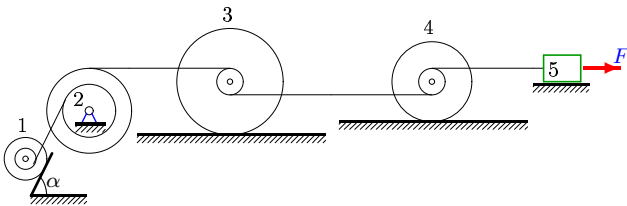
$$m_1 = 4, m_2 = 4,$$

$$m_3 = 64, m_4 = 12,$$

$$m_5 = 2.$$

**Задача D-33.19.**

*Обновленный Михаил*



$$R_1 = 2, r_1 = 1, \rho_1 = 1,$$

$$R_2 = 4, r_2 = 2, \rho_2 = 3,$$

$$R_3 = 4, r_3 = 1, \rho_3 = 3,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

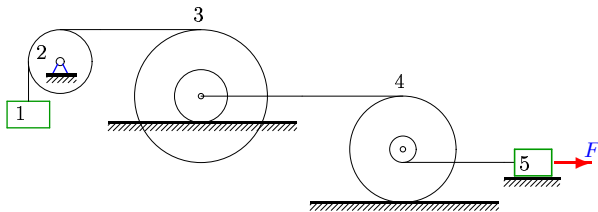
$$m_1 = 12, m_2 = 80,$$

$$m_3 = 6, m_4 = 100,$$

$$m_5 = 100.$$

**Задача D-33.20.**

*Султыгов Али*



$$R_3 = 5, r_3 = 2, \rho_3 = 4,$$

$$R_4 = 4, r_4 = 1, \rho_4 = 3,$$

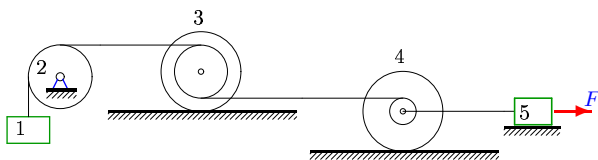
$$m_1 = 10, m_2 = 8,$$

$$m_3 = 196, m_4 = 784,$$

$$m_5 = 784.$$

**Задача D-33.21.**

*Сурков Вячеслав*



$$R_3 = 3, r_3 = 2, \rho_3 = 2,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

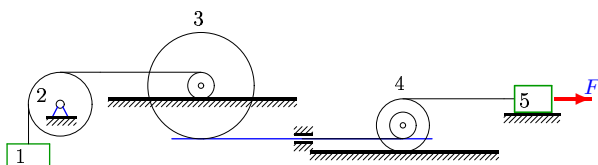
$$m_1 = 10, m_2 = 10,$$

$$m_3 = 100, m_4 = 400,$$

$$m_5 = 400.$$

**Задача D-33.22.**

*Суслов Даниил*



$$R_3 = 4, r_3 = 1, \rho_3 = 3,$$

$$R_4 = 2, r_4 = 1, \rho_4 = 1,$$

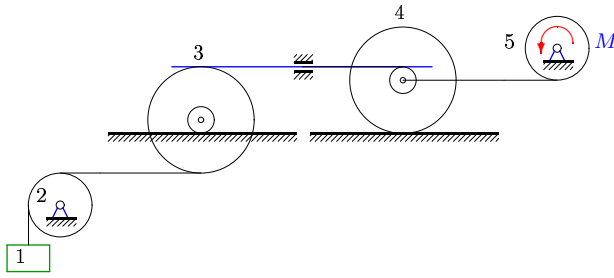
$$m_1 = 13, m_2 = 12,$$

$$m_3 = 8, m_4 = 12,$$

$$m_5 = 2.$$

Задача D-33.23.

Сяськова Валерия



$$R_3 = 4, r_3 = 1, \rho_3 = 3,$$

$$R_4 = 4, r_4 = 1, \rho_4 = 3,$$

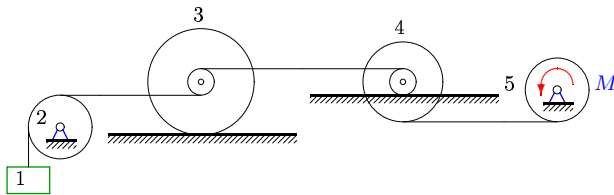
$$m_1 = 13, m_2 = 6,$$

$$m_3 = 36, m_4 = 27,$$

$$m_5 = 36.$$

Задача D-33.24.

Фандеев Алексей



$$R_3 = 4, r_3 = 1, \rho_3 = 3,$$

$$R_4 = 3, r_4 = 1, \rho_4 = 2,$$

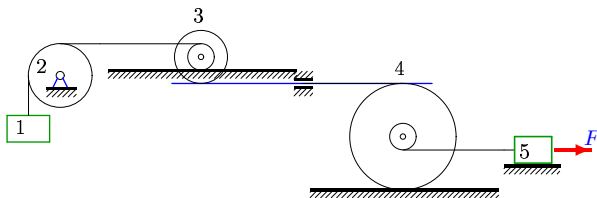
$$m_1 = 16, m_2 = 10,$$

$$m_3 = 36, m_4 = 36,$$

$$m_5 = 36.$$

Задача D-33.25.

Цупенков Дмитрий



$$R_3 = 2, r_3 = 1, \rho_3 = 1,$$

$$R_4 = 4, r_4 = 1, \rho_4 = 3,$$

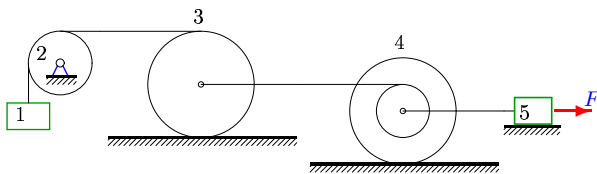
$$m_1 = 13, m_2 = 8,$$

$$m_3 = 8, m_4 = 256,$$

$$m_5 = 256.$$

Задача D-33.26.

Чечнева Наталья



$$R_3 = 4,$$

$$R_4 = 4, r_4 = 2, \rho_4 = 3,$$

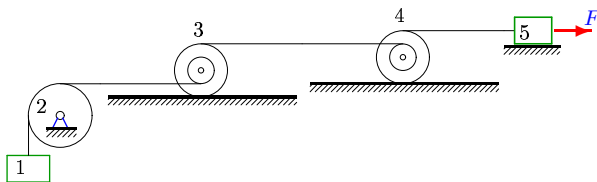
$$m_1 = 8, m_2 = 10,$$

$$m_3 = 32, m_4 = 144,$$

$$m_5 = 18.$$

Задача D-33.27.

Чиждова Александра



$$R_3 = 2, r_3 = 1, \rho_3 = 1,$$

$$R_4 = 2, r_4 = 1, \rho_4 = 1,$$

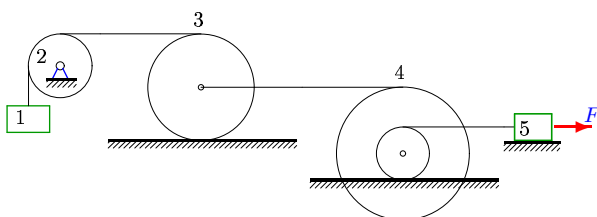
$$m_1 = 4, m_2 = 12,$$

$$m_3 = 4, m_4 = 27,$$

$$m_5 = 9.$$

Задача D-33.28.

Шаронова Дарья



$$R_3 = 4,$$

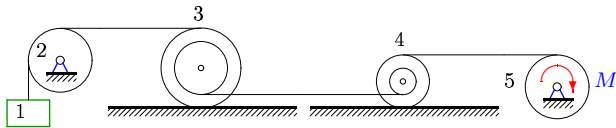
$$R_4 = 5, r_4 = 2, \rho_4 = 4,$$

$$m_1 = 10, m_2 = 8,$$

$$m_3 = 32, m_4 = 147,$$

$$m_5 = 98.$$

Задача D-33.29.



*Шашелко Арсентий*

$$R_3 = 3, r_3 = 2, \rho_3 = 2,$$

$$R_4 = 2, r_4 = 1, \rho_4 = 1,$$

$$m_1 = 6, m_2 = 12,$$

$$m_3 = 180, m_4 = 144,$$

$$m_5 = 54.$$