

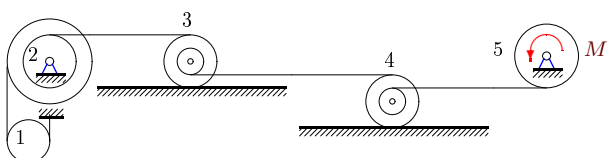
Кинетическая энергия системы. Приведенные массы

Механическая система, состоящая из пяти тел 1, 2, 3, 4 и 5, движется под действием внешних сил. Заданы радиусы цилиндров и блоков. Радиусы инерции ρ 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 μ в формуле $T = \mu v_1^2/2$, где v_1 — скорость 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.

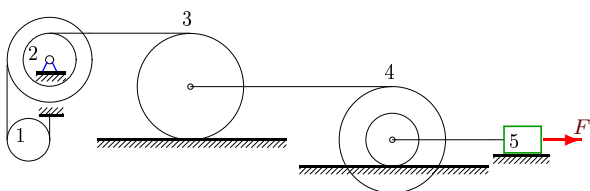
Антонова Вера



$$\begin{aligned} R_2 &= 4, r_2 = 2, \rho_2 = 3, \\ R_3 &= 2, r_3 = 1, \rho_3 = 1, \\ R_4 &= 2, r_4 = 1, \rho_4 = 1, \\ m_1 &= 2, m_2 = 24, \\ m_3 &= 64, m_4 = 256, \\ m_5 &= 512. \end{aligned}$$

Задача D-33.2.

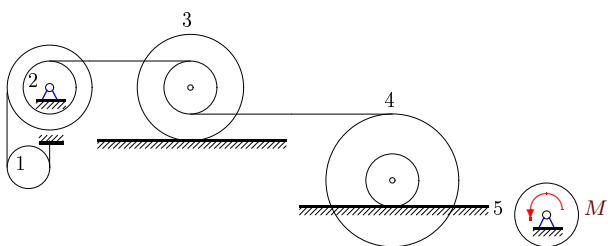
Бабак Александр



$$\begin{aligned} R_2 &= 4, r_2 = 2, \rho_2 = 2, \\ R_3 &= 4, \\ R_4 &= 4, r_4 = 2, \rho_4 = 3, \\ m_1 &= 2, m_2 = 8, \\ m_3 &= 32, m_4 = 144, \\ m_5 &= 72. \end{aligned}$$

Задача D-33.3.

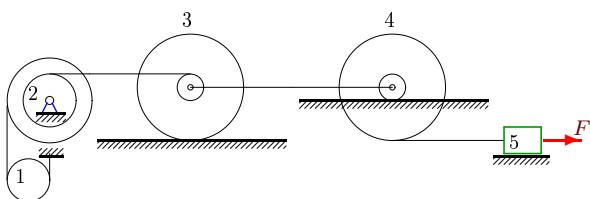
Брагина Надежда



$$\begin{aligned} R_2 &= 4, r_2 = 2, \rho_2 = 2, \\ R_3 &= 4, r_3 = 2, \rho_3 = 3, \\ R_4 &= 5, r_4 = 2, \rho_4 = 4, \\ m_1 &= 4, m_2 = 16, \\ m_3 &= 180, m_4 = 441, \\ m_5 &= 294. \end{aligned}$$

Задача D-33.4.

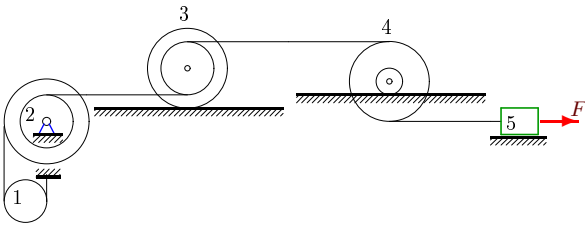
Власов Олег



$$\begin{aligned} R_2 &= 4, r_2 = 2, \rho_2 = 2, \\ R_3 &= 4, r_3 = 1, \rho_3 = 3, \\ R_4 &= 4, r_4 = 1, \rho_4 = 3, \\ m_1 &= 6, m_2 = 12, \\ m_3 &= 6, m_4 = 25, \\ m_5 &= 25. \end{aligned}$$

Задача D-33.5.

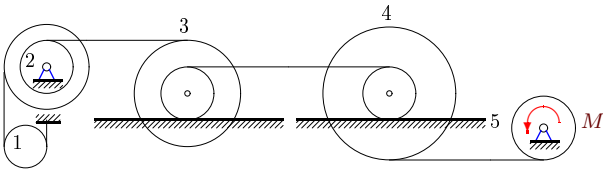
Гузенко Оля



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 3, r_3 = 2, \rho_3 = 2, \\
 R_4 &= 3, r_4 = 1, \rho_4 = 2, \\
 m_1 &= 2, m_2 = 20, \\
 m_3 &= 4, m_4 = 16, \\
 m_5 &= 8.
 \end{aligned}$$

Задача D-33.6.

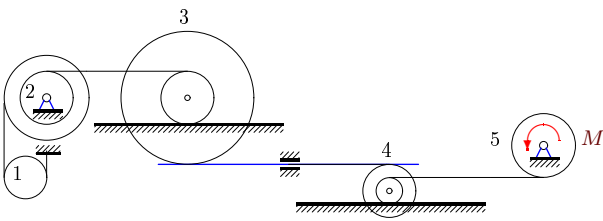
Доманов Евгений



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 4, r_3 = 2, \rho_3 = 3, \\
 R_4 &= 5, r_4 = 2, \rho_4 = 4, \\
 m_1 &= 2, m_2 = 16, \\
 m_3 &= 144, m_4 = 27, \\
 m_5 &= 16.
 \end{aligned}$$

Задача D-33.7.

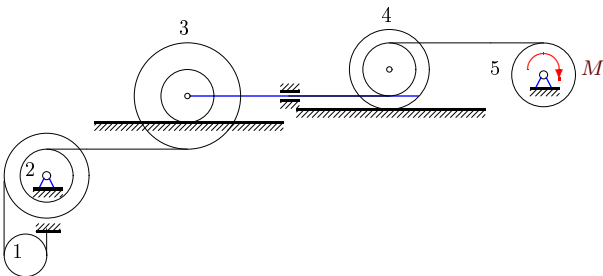
Загородний Константин



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 5, r_3 = 2, \rho_3 = 4, \\
 R_4 &= 2, r_4 = 1, \rho_4 = 1, \\
 m_1 &= 2, m_2 = 24, \\
 m_3 &= 16, m_4 = 24, \\
 m_5 &= 16.
 \end{aligned}$$

Задача D-33.8.

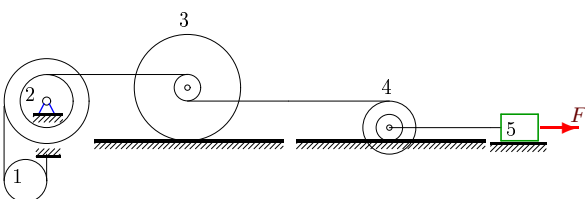
Заломин Роман



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 3, \\
 R_3 &= 4, r_3 = 2, \rho_3 = 3, \\
 R_4 &= 3, r_4 = 2, \rho_4 = 2, \\
 m_1 &= 8, m_2 = 24, \\
 m_3 &= 28, m_4 = 6, \\
 m_5 &= 10.
 \end{aligned}$$

Задача D-33.9.

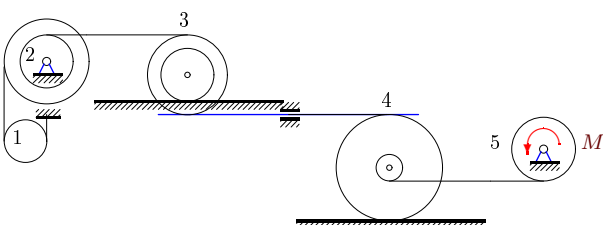
Игнатенко Михаил



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 4, r_3 = 1, \rho_3 = 3, \\
 R_4 &= 2, r_4 = 1, \rho_4 = 1, \\
 m_1 &= 2, m_2 = 24, \\
 m_3 &= 4, m_4 = 75, \\
 m_5 &= 50.
 \end{aligned}$$

Задача D-33.10.

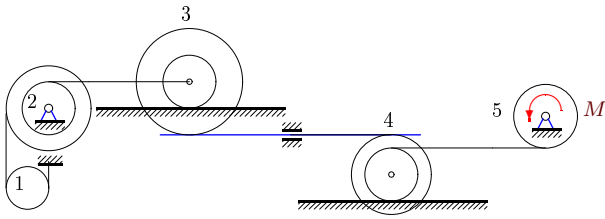
Коклин Александр



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 3, \\
 R_3 &= 3, r_3 = 2, \rho_3 = 2, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 8, m_2 = 12, \\
 m_3 &= 175, m_4 = 384, \\
 m_5 &= 3200.
 \end{aligned}$$

Задача D-33.11.

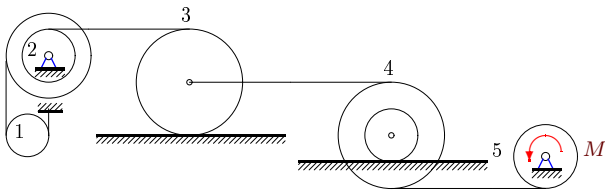
Кудинова Юлия



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 4, r_3 = 2, \rho_3 = 3, \\
 R_4 &= 3, r_4 = 2, \rho_4 = 2, \\
 m_1 &= 4, m_2 = 24, \\
 m_3 &= 20, m_4 = 100, \\
 m_5 &= 150.
 \end{aligned}$$

Задача D-33.12.

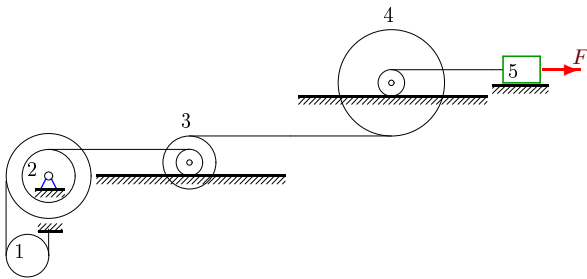
Любчик Владислав



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 4, \\
 R_4 &= 4, r_4 = 2, \rho_4 = 3, \\
 m_1 &= 2, m_2 = 8, \\
 m_3 &= 32, m_4 = 144, \\
 m_5 &= 144.
 \end{aligned}$$

Задача D-33.13.

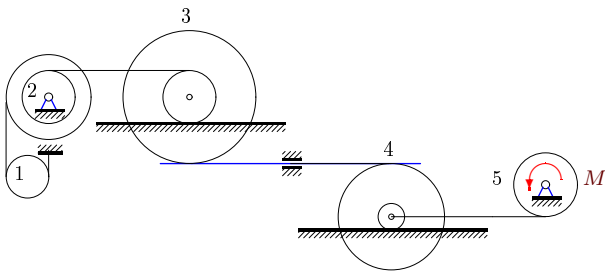
Мацаренко Марк



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 2, r_3 = 1, \rho_3 = 1, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 2, m_2 = 12, \\
 m_3 &= 8, m_4 = 6, \\
 m_5 &= 2.
 \end{aligned}$$

Задача D-33.14.

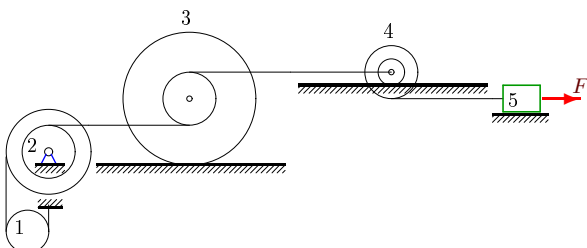
Никишина Настя



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 5, r_3 = 2, \rho_3 = 4, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 2, m_2 = 16, \\
 m_3 &= 16, m_4 = 120, \\
 m_5 &= 800.
 \end{aligned}$$

Задача D-33.15.

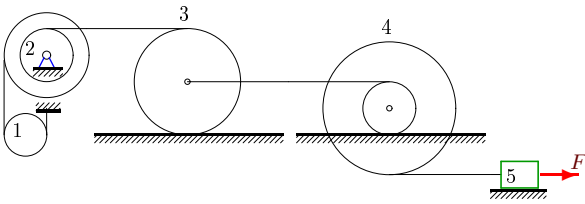
Пешков Алексей



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 2, \\
 R_3 &= 5, r_3 = 2, \rho_3 = 4, \\
 R_4 &= 2, r_4 = 1, \rho_4 = 1, \\
 m_1 &= 2, m_2 = 24, \\
 m_3 &= 36, m_4 = 27, \\
 m_5 &= 18.
 \end{aligned}$$

Задача D-33.16.

Прохорский Глеб



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

$$R_3 = 4,$$

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

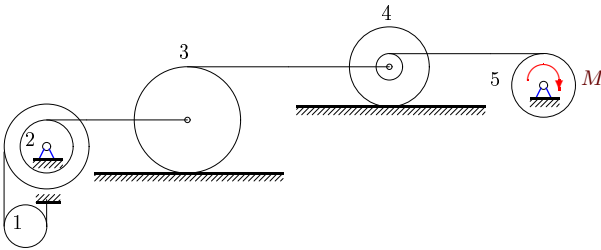
$$m_1 = 2, m_2 = 16,$$

$$m_3 = 32, m_4 = 48,$$

$$m_5 = 128.$$

Задача D-33.17.

Соколов Никита



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

$$R_3 = 4,$$

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

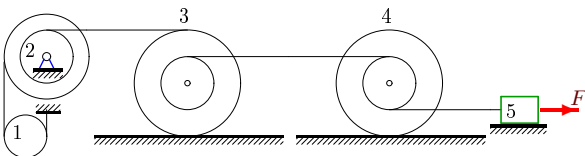
$$m_1 = 2, m_2 = 20,$$

$$m_3 = 8, m_4 = 27,$$

$$m_5 = 36.$$

Задача D-33.18.

Солодовников Вячеслав



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

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

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

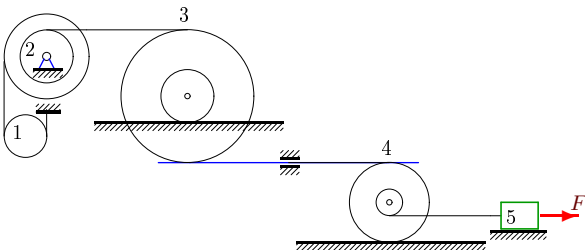
$$m_1 = 2, m_2 = 8,$$

$$m_3 = 256, m_4 = 192,$$

$$m_5 = 32.$$

Задача D-33.19.

Сулименко Данил



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

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

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

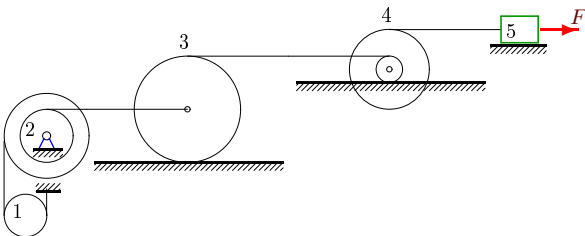
$$m_1 = 2, m_2 = 20,$$

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

$$m_5 = 98.$$

Задача D-33.20.

Танюков Валентин



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

$$R_3 = 4,$$

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

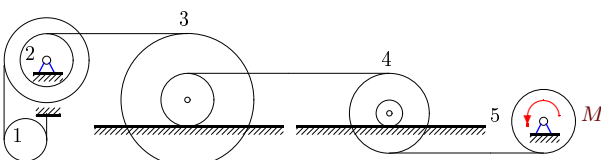
$$m_1 = 2, m_2 = 8,$$

$$m_3 = 8, m_4 = 3,$$

$$m_5 = 2.$$

Задача D-33.21.

Фролов И.А.



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

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

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

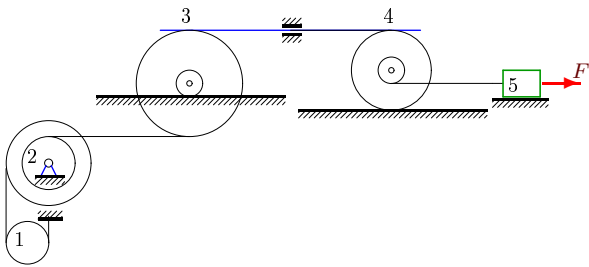
$$m_1 = 2, m_2 = 8,$$

$$m_3 = 196, m_4 = 147,$$

$$m_5 = 196.$$

Задача D-33.22.

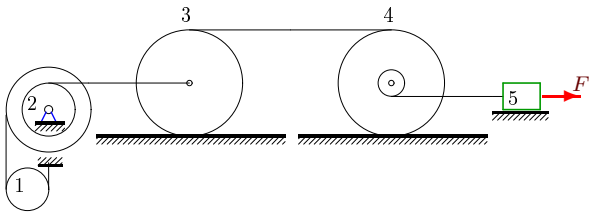
Хромов Иннокентий



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 3, \\
 R_3 &= 4, r_3 = 1, \rho_3 = 3, \\
 R_4 &= 3, r_4 = 1, \rho_4 = 2, \\
 m_1 &= 6, m_2 = 8, \\
 m_3 &= 54, m_4 = 324, \\
 m_5 &= 324.
 \end{aligned}$$

Задача D-33.23.

Шагина Юлия



$$\begin{aligned}
 R_2 &= 4, r_2 = 2, \rho_2 = 3, \\
 R_3 &= 4, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 10, m_2 = 16, \\
 m_3 &= 16, m_4 = 112, \\
 m_5 &= 96.
 \end{aligned}$$