

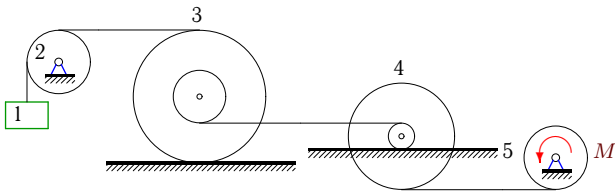
## Кинетическая энергия системы. Приведенные массы

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.

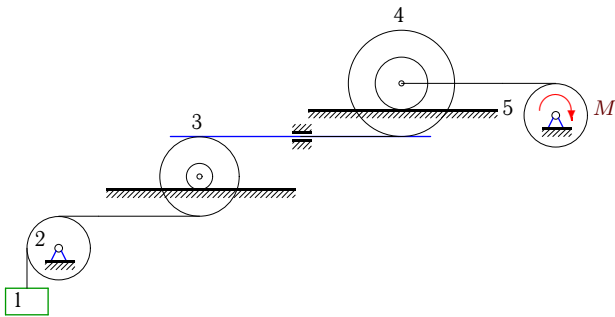
Акулина Даша



$$\begin{aligned} R_3 &= 5, \quad r_3 = 2, \quad \rho_3 = 4, \\ R_4 &= 4, \quad r_4 = 1, \quad \rho_4 = 3, \\ m_1 &= 13, \quad m_2 = 6, \\ m_3 &= 100, \quad m_4 = 120, \\ m_5 &= 800. \end{aligned}$$

### Задача D-33.2.

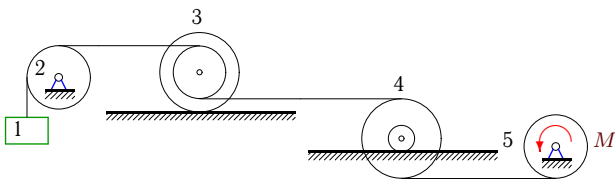
Анарбаев Б.



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

### Задача D-33.3.

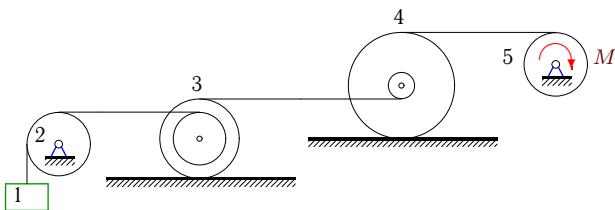
Баранов Максим



$$\begin{aligned} R_3 &= 3, \quad r_3 = 2, \quad \rho_3 = 2, \\ R_4 &= 3, \quad r_4 = 1, \quad \rho_4 = 2, \\ m_1 &= 14, \quad m_2 = 4, \\ m_3 &= 100, \quad m_4 = 240, \\ m_5 &= 200. \end{aligned}$$

### Задача D-33.4.

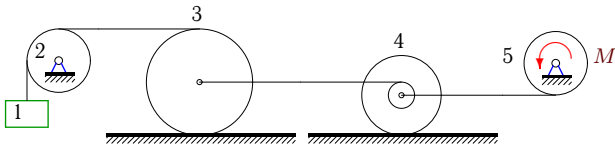
Бибирли Эмиль



$$\begin{aligned} R_3 &= 3, \quad r_3 = 2, \quad \rho_3 = 2, \\ R_4 &= 4, \quad r_4 = 1, \quad \rho_4 = 3, \\ m_1 &= 5, \quad m_2 = 6, \\ m_3 &= 125, \quad m_4 = 4, \\ m_5 &= 50. \end{aligned}$$

**Задача D-33.5.**

*Биль Евгений*



$$R_3 = 4,$$

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

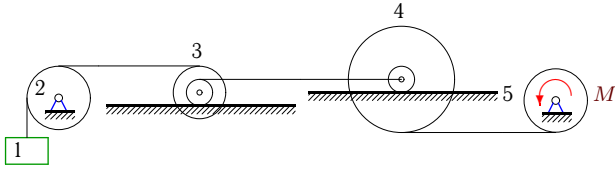
$$m_1 = 9, m_2 = 10,$$

$$m_3 = 40, m_4 = 256,$$

$$m_5 = 128.$$

**Задача D-33.6.**

*Волковой Илья*



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

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

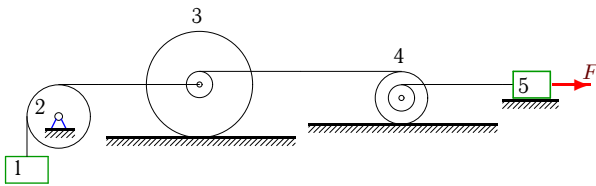
$$m_1 = 16, m_2 = 8,$$

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

$$m_5 = 4.$$

**Задача D-33.7.**

*Глядяев А.Д.*



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

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

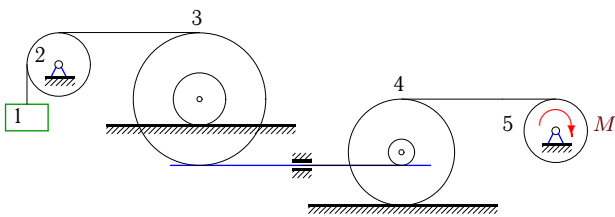
$$m_1 = 6, m_2 = 2,$$

$$m_3 = 64, m_4 = 256,$$

$$m_5 = 256.$$

**Задача D-33.8.**

*Горбатенко Егор*



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

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

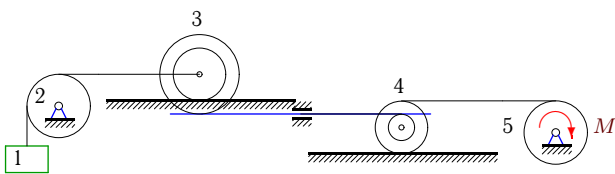
$$m_1 = 11, m_2 = 6,$$

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

$$m_5 = 196.$$

**Задача D-33.9.**

*Губин Иван*



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

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

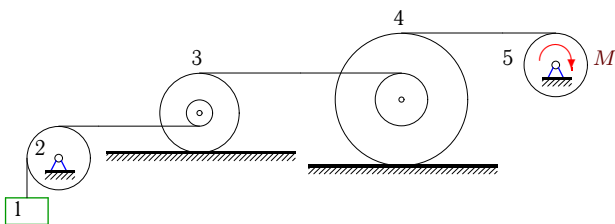
$$m_1 = 11, m_2 = 2,$$

$$m_3 = 4, m_4 = 108,$$

$$m_5 = 36.$$

**Задача D-33.10.**

*Драгин Егор*



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

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

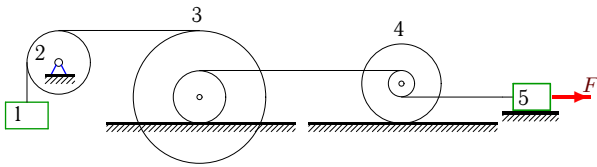
$$m_1 = 4, m_2 = 8,$$

$$m_3 = 16, m_4 = 49,$$

$$m_5 = 98.$$

**Задача D-33.11.**

*Исаков Александр*



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

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

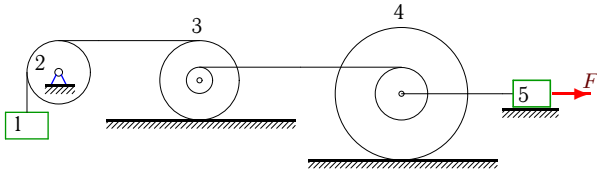
$$m_1 = 12, m_2 = 10,$$

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

$$m_5 = 98.$$

**Задача D-33.12.**

*Картушин Александр*



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

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

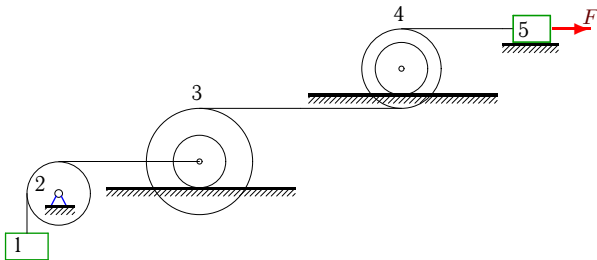
$$m_1 = 10, m_2 = 8,$$

$$m_3 = 288, m_4 = 441,$$

$$m_5 = 441.$$

**Задача D-33.13.**

*Костина Даша*



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

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

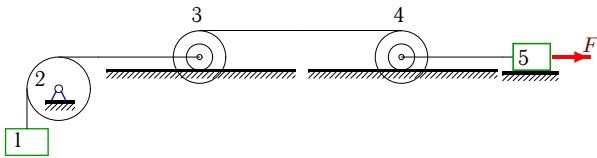
$$m_1 = 16, m_2 = 12,$$

$$m_3 = 16, m_4 = 3,$$

$$m_5 = 1.$$

**Задача D-33.14.**

*Лбова Александра*



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

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

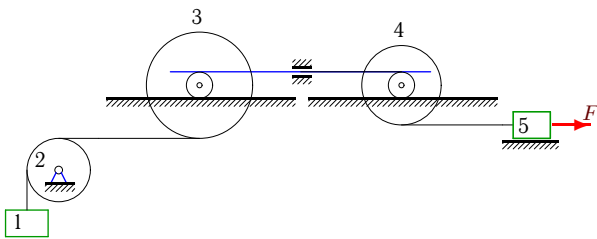
$$m_1 = 19, m_2 = 12,$$

$$m_3 = 8, m_4 = 7,$$

$$m_5 = 6.$$

**Задача D-33.15.**

*Муржи Николай*



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

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

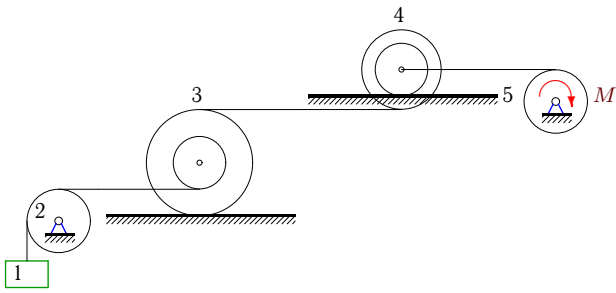
$$m_1 = 21, m_2 = 10,$$

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

$$m_5 = 18.$$

**Задача D-33.16.**

*Никитенков Федор*



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

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

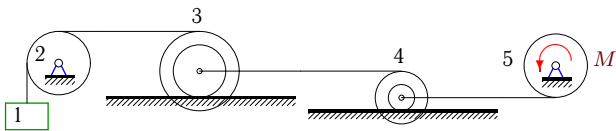
$$m_1 = 15, m_2 = 2,$$

$$m_3 = 28, m_4 = 1,$$

$$m_5 = 10.$$

**Задача D-33.17.**

*Новиков Павел*



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

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

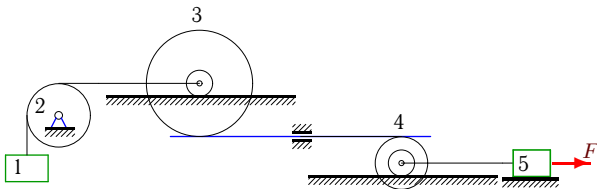
$$m_1 = 18, m_2 = 2,$$

$$m_3 = 175, m_4 = 225,$$

$$m_5 = 450.$$

**Задача D-33.18.**

*Опитев Владислав*



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

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

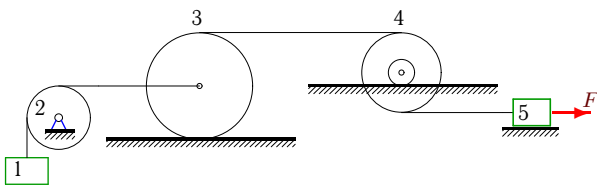
$$m_1 = 17, m_2 = 2,$$

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

$$m_5 = 2.$$

**Задача D-33.19.**

*Оршак Сергей*



$$R_3 = 4,$$

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

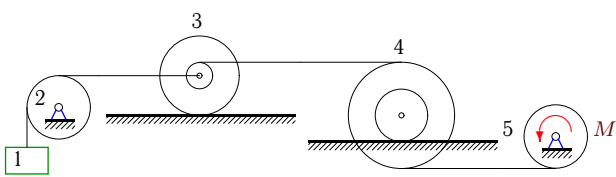
$$m_1 = 12, m_2 = 4,$$

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

$$m_5 = 2.$$

**Задача D-33.20.**

*Парахин Андрей*



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

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

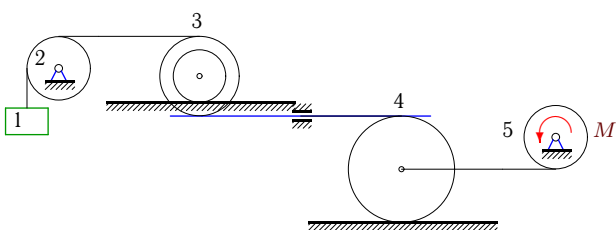
$$m_1 = 13, m_2 = 10,$$

$$m_3 = 36, m_4 = 243,$$

$$m_5 = 162.$$

**Задача D-33.21.**

*Парохин Антон*



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

$$R_4 = 4,$$

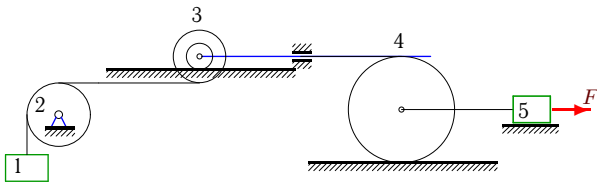
$$m_1 = 12, m_2 = 6,$$

$$m_3 = 100, m_4 = 200,$$

$$m_5 = 200.$$

**Задача D-33.22.**

*Пархоменко Иван*



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

$$R_4 = 4,$$

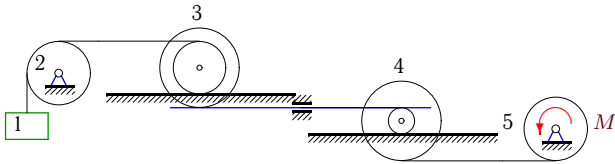
$$m_1 = 13, m_2 = 10,$$

$$m_3 = 4, m_4 = 24,$$

$$m_5 = 8.$$

**Задача D-33.23.**

*Петров Кирилл*



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

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

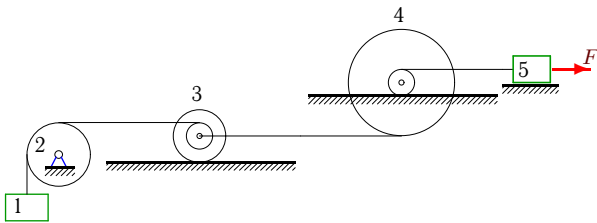
$$m_1 = 21, m_2 = 10,$$

$$m_3 = 8, m_4 = 192,$$

$$m_5 = 64.$$

**Задача D-33.24.**

*Петухов Антон*



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

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

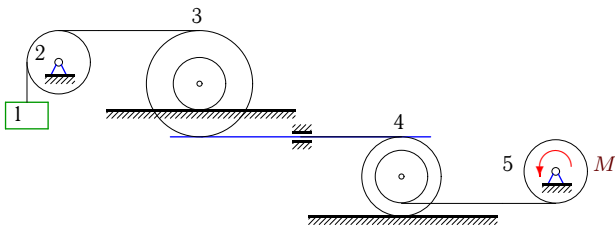
$$m_1 = 15, m_2 = 8,$$

$$m_3 = 36, m_4 = 243,$$

$$m_5 = 162.$$

**Задача D-33.25.**

*Руфин Никита*



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

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

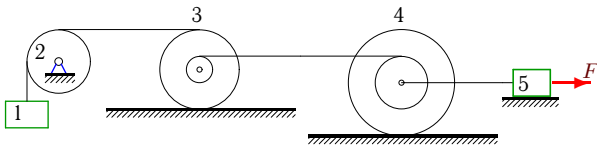
$$m_1 = 11, m_2 = 12,$$

$$m_3 = 144, m_4 = 324,$$

$$m_5 = 648.$$

**Задача D-33.26.**

*Самойлов Никита*



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

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

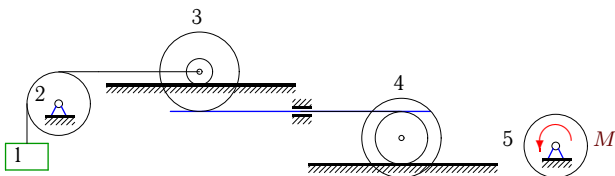
$$m_1 = 6, m_2 = 10,$$

$$m_3 = 144, m_4 = 243,$$

$$m_5 = 162.$$

**Задача D-33.27.**

*Семенова Ирина*



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

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

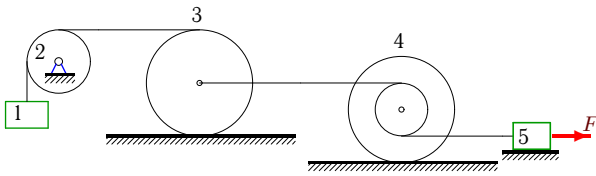
$$m_1 = 20, m_2 = 2,$$

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

$$m_5 = 16.$$

**Задача D-33.28.**

*Слявин Ярослав*



$$R_3 = 4,$$

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

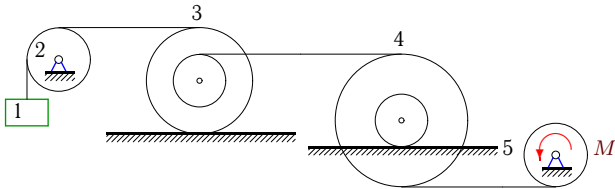
$$m_1 = 9, m_2 = 10,$$

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

$$m_5 = 72.$$

**Задача D-33.29.**

*Сюлюкин Кирилл*



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

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

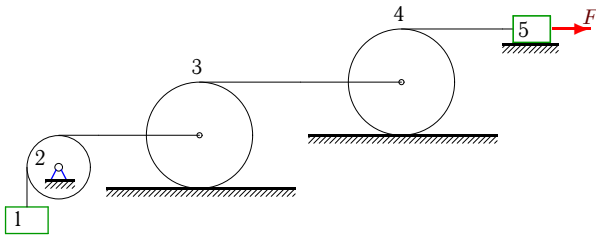
$$m_1 = 13, m_2 = 8,$$

$$m_3 = 448, m_4 = 196,$$

$$m_5 = 1568.$$

**Задача D-33.30.**

*Хачалов Магомед*



$$R_3 = 4,$$

$$R_4 = 4,$$

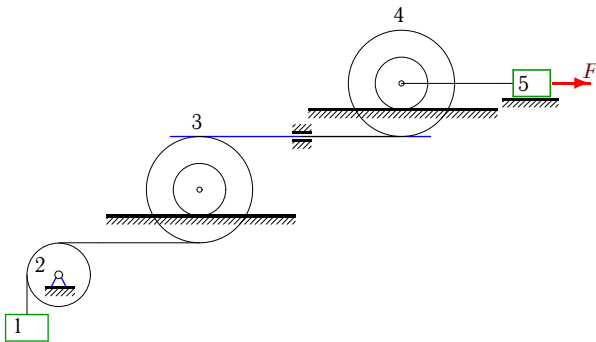
$$m_1 = 9, m_2 = 4,$$

$$m_3 = 12, m_4 = 5,$$

$$m_5 = 4.$$

**Задача D-33.31.**

*Чаймелов Андрей*



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

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

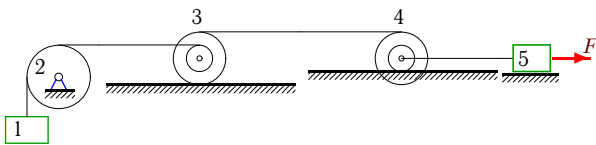
$$m_1 = 18, m_2 = 4,$$

$$m_3 = 16, m_4 = 12,$$

$$m_5 = 2.$$

**Задача D-33.32.**

*Чумаков Иван*



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

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

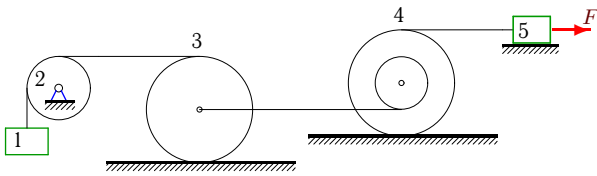
$$m_1 = 9, m_2 = 2,$$

$$m_3 = 36, m_4 = 243,$$

$$m_5 = 162.$$

**Задача D-33.33.**

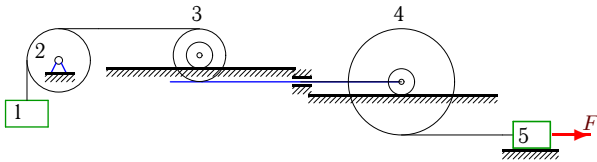
*Шубин Станислав*



$$\begin{aligned}
 R_3 &= 4, \\
 R_4 &= 4, r_4 = 2, \rho_4 = 3, \\
 m_1 &= 6, m_2 = 4, \\
 m_3 &= 32, m_4 = 48, \\
 m_5 &= 2.
 \end{aligned}$$

**Задача D-33.34.**

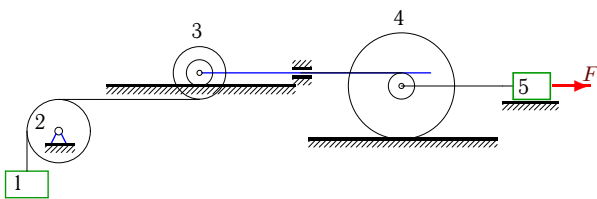
*Юшин Илья*



$$\begin{aligned}
 R_3 &= 2, r_3 = 1, \rho_3 = 1, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 22, m_2 = 6, \\
 m_3 &= 72, m_4 = 63, \\
 m_5 &= 6.
 \end{aligned}$$

**Задача D-33.35.**

*Ярилин Иван*



$$\begin{aligned}
 R_3 &= 2, r_3 = 1, \rho_3 = 1, \\
 R_4 &= 4, r_4 = 1, \rho_4 = 3, \\
 m_1 &= 14, m_2 = 8, \\
 m_3 &= 4, m_4 = 3, \\
 m_5 &= 50.
 \end{aligned}$$