

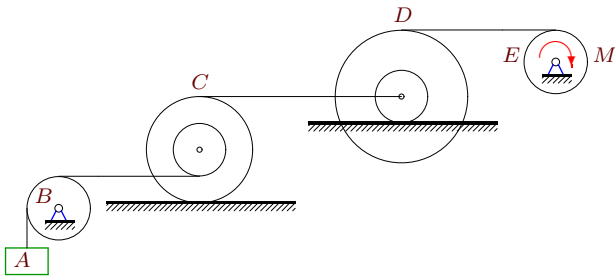
## Кинетическая энергия системы. Приведенные массы

Механическая система, состоящая из пяти тел  $A, B, C, D$  и  $E$ , движется под действием внешних сил. Заданы радиусы цилиндров и блоков. Радиусы инерции 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  $T = \mu v_A^2/2$ , где  $v_A$  — скорость груза  $A$  (или центра цилиндра  $A$ ).

Кирсанов М.Н. **Решбник. Теоретическая механика**/Под ред. А. И. Кириллова.— М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.257.)

### Задача 33.1.

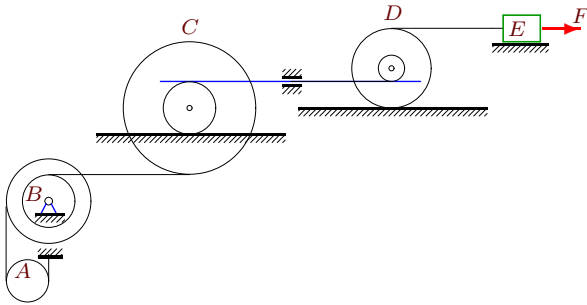
Аксенов Юрий



$$\begin{aligned} R_C &= 4, r_C = 2, i_C = 3, \\ R_D &= 5, r_D = 2, i_D = 4, \\ m_A &= 13, m_B = 6, \\ m_C &= 28, m_D = 6, \\ m_E &= 2. \end{aligned}$$

### Задача 33.2.

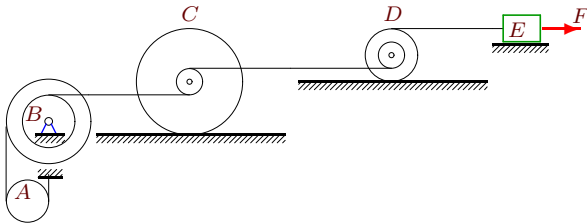
Бондаренко В.



$$\begin{aligned} R_B &= 4, r_B = 2, i_B = 3, \\ R_C &= 5, r_C = 2, i_C = 4, \\ R_D &= 3, r_D = 1, i_D = 2, \\ m_A &= 6, m_B = 20, \\ m_C &= 54, m_D = 45, \\ m_E &= 4. \end{aligned}$$

### Задача 33.3.

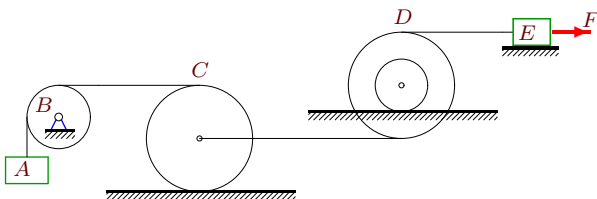
Бублей Александр



$$\begin{aligned} R_B &= 4, r_B = 2, i_B = 3, \\ R_C &= 4, r_C = 1, i_C = 3, \\ R_D &= 2, r_D = 1, i_D = 1, \\ m_A &= 6, m_B = 24, \\ m_C &= 54, m_D = 9, \\ m_E &= 9. \end{aligned}$$

### Задача 33.4.

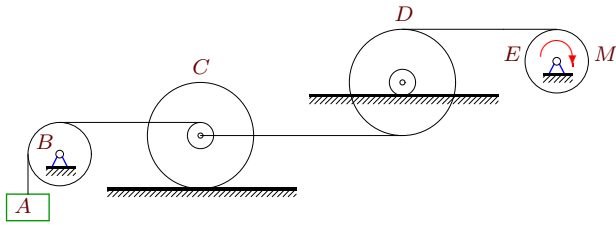
Воробьев Кирилл



$$\begin{aligned} R_C &= 4, \\ R_D &= 4, r_D = 2, i_D = 3, \\ m_A &= 15, m_B = 10, \\ m_C &= 56, m_D = 96, \\ m_E &= 20. \end{aligned}$$

**Задача 33.5.**

*Гаджиев Джамал*



$$R_C = 4, r_C = 1, i_C = 3,$$

$$R_D = 4, r_D = 1, i_D = 3,$$

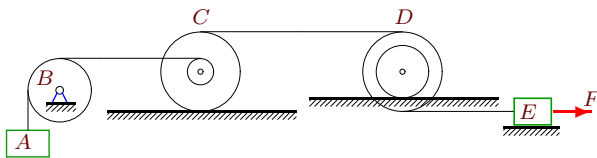
$$m_A = 17, m_B = 6,$$

$$m_C = 8, m_D = 315,$$

$$m_E = 108.$$

**Задача 33.6.**

*Грицай Виктор*



$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 3, r_D = 2, i_D = 2,$$

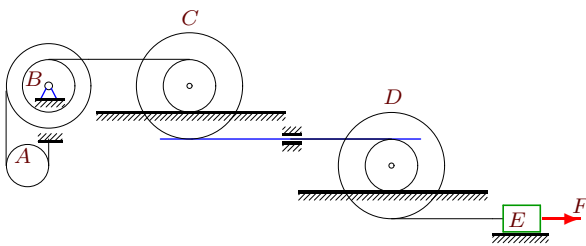
$$m_A = 10, m_B = 2,$$

$$m_C = 64, m_D = 75,$$

$$m_E = 100.$$

**Задача 33.7.**

*Желябовская Юлия*



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 4, r_C = 2, i_C = 3,$$

$$R_D = 4, r_D = 2, i_D = 3,$$

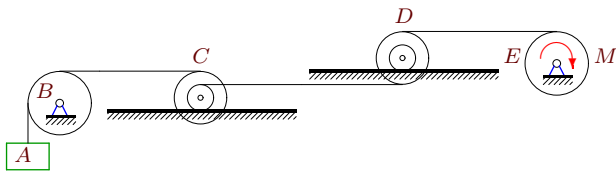
$$m_A = 4, m_B = 20,$$

$$m_C = 80, m_D = 256,$$

$$m_E = 48.$$

**Задача 33.8.**

*Зайцева Евгения*



$$R_C = 2, r_C = 1, i_C = 1,$$

$$R_D = 2, r_D = 1, i_D = 1,$$

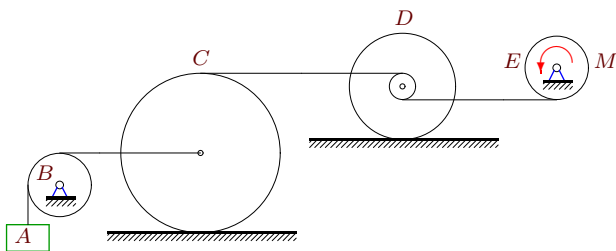
$$m_A = 18, m_B = 12,$$

$$m_C = 63, m_D = 54,$$

$$m_E = 10.$$

**Задача 33.9.**

*Колесник Анастасия*



$$R_C = 6,$$

$$R_D = 4, r_D = 1, i_D = 3,$$

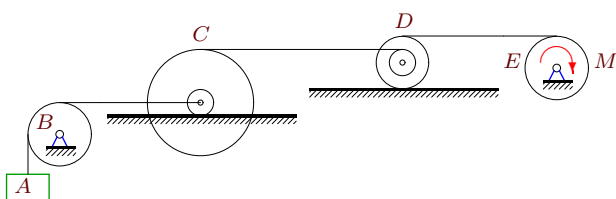
$$m_A = 13, m_B = 8,$$

$$m_C = 16, m_D = 7,$$

$$m_E = 300.$$

**Задача 33.10.**

*Костюков Дмитрий*



$$R_C = 4, r_C = 1, i_C = 3,$$

$$R_D = 2, r_D = 1, i_D = 1,$$

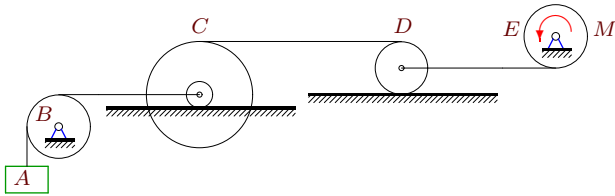
$$m_A = 12, m_B = 12,$$

$$m_C = 7, m_D = 9,$$

$$m_E = 18.$$

**Задача 33.11.**

*Коротеев Александр*



$$R_C = 4, r_C = 1, i_C = 3,$$

$$R_D = 2,$$

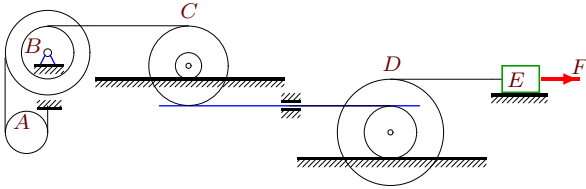
$$m_A = 12, m_B = 2,$$

$$m_C = 5, m_D = 32,$$

$$m_E = 24.$$

**Задача 33.12.**

*Котенко Вячеслав*



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 4, r_D = 2, i_D = 3,$$

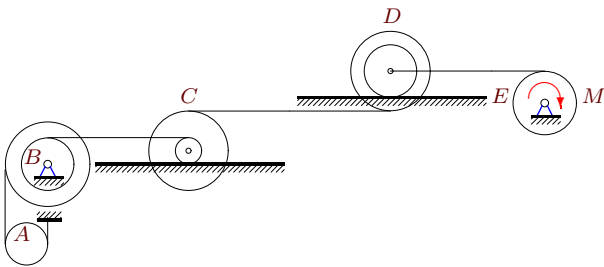
$$m_A = 4, m_B = 20,$$

$$m_C = 80, m_D = 256,$$

$$m_E = 48.$$

**Задача 33.13.**

*Мальцев Александр*



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 3, r_D = 2, i_D = 2,$$

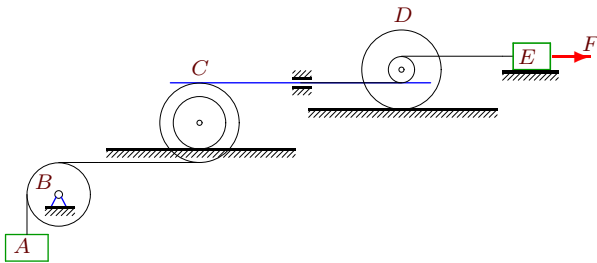
$$m_A = 4, m_B = 24,$$

$$m_C = 20, m_D = 4,$$

$$m_E = 6.$$

**Задача 33.14.**

*Настаева Зухра*



$$R_C = 3, r_C = 2, i_C = 2,$$

$$R_D = 3, r_D = 1, i_D = 2,$$

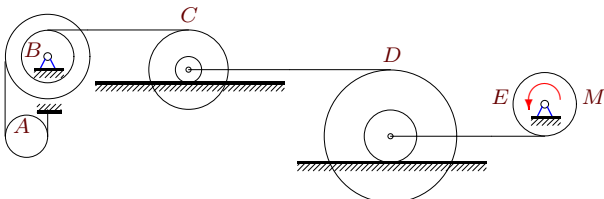
$$m_A = 17, m_B = 4,$$

$$m_C = 7, m_D = 4,$$

$$m_E = 5.$$

**Задача 33.15.**

*Светлов Вадим*



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 5, r_D = 2, i_D = 4,$$

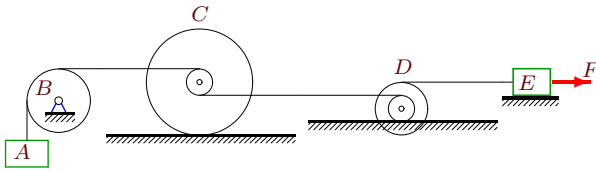
$$m_A = 4, m_B = 12,$$

$$m_C = 80, m_D = 196,$$

$$m_E = 392.$$

**Задача 33.16.**

Смирнова Анастасия



$$R_C = 4, r_C = 1, i_C = 3,$$

$$R_D = 2, r_D = 1, i_D = 1,$$

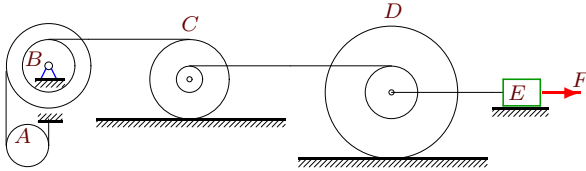
$$m_A = 13, m_B = 2,$$

$$m_C = 5, m_D = 200,$$

$$m_E = 100.$$

**Задача 33.17.**

Степин Илья



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 5, r_D = 2, i_D = 4,$$

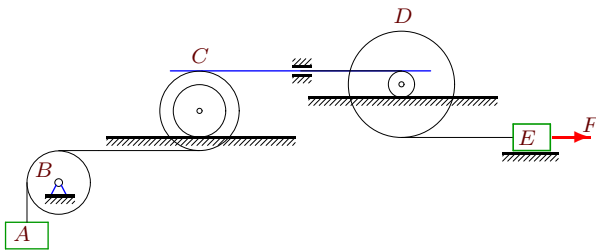
$$m_A = 4, m_B = 12,$$

$$m_C = 180, m_D = 441,$$

$$m_E = 441.$$

**Задача 33.18.**

Цвирко Федор



$$R_C = 3, r_C = 2, i_C = 2,$$

$$R_D = 4, r_D = 1, i_D = 3,$$

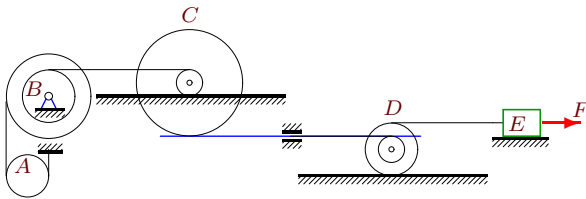
$$m_A = 21, m_B = 8,$$

$$m_C = 6, m_D = 2,$$

$$m_E = 4.$$

**Задача 33.19.**

Ченцов Максим



$$R_B = 4, r_B = 2, i_B = 3,$$

$$R_C = 4, r_C = 1, i_C = 3,$$

$$R_D = 2, r_D = 1, i_D = 1,$$

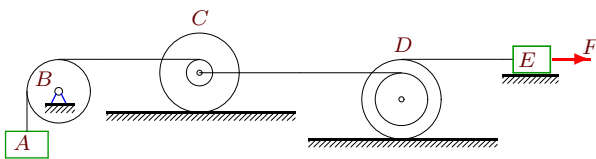
$$m_A = 6, m_B = 24,$$

$$m_C = 12, m_D = 20,$$

$$m_E = 4.$$

**Задача 33.20.**

Чигидина Лиза



$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 3, r_D = 2, i_D = 2,$$

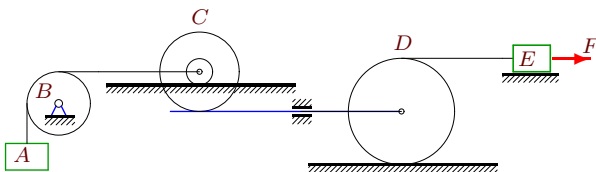
$$m_A = 10, m_B = 12,$$

$$m_C = 128, m_D = 400,$$

$$m_E = 100.$$

**Задача 33.21.**

Шабан Михаил



$$R_C = 3, r_C = 1, i_C = 2,$$

$$R_D = 4,$$

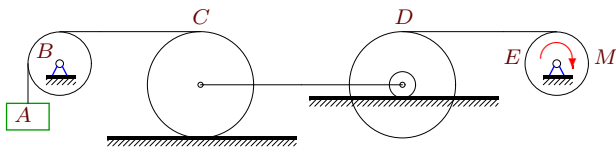
$$m_A = 17, m_B = 2,$$

$$m_C = 8, m_D = 7,$$

$$m_E = 6.$$

**Задача 33.22.**

*Шевцов Никита*



$$R_C = 4,$$

$$R_D = 4, r_D = 1, i_D = 3,$$

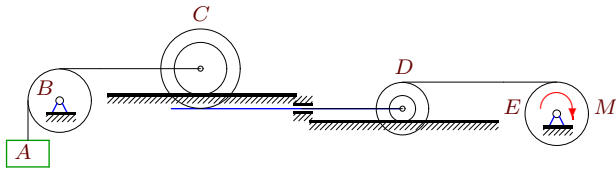
$$m_A = 13, m_B = 8,$$

$$m_C = 48, m_D = 10,$$

$$m_E = 32.$$

**Задача 33.23.**

*Шимарова Светлана*



$$R_C = 3, r_C = 2, i_C = 2,$$

$$R_D = 2, r_D = 1, i_D = 1,$$

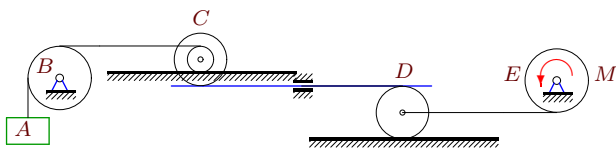
$$m_A = 19, m_B = 12,$$

$$m_C = 6, m_D = 10,$$

$$m_E = 32.$$

**Задача 33.24.**

*Шинкина Анна*



$$R_C = 2, r_C = 1, i_C = 1,$$

$$R_D = 2,$$

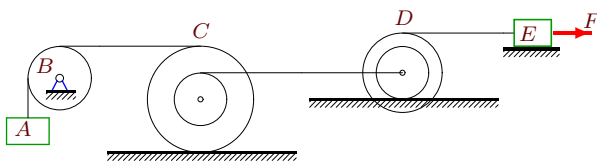
$$m_A = 17, m_B = 2,$$

$$m_C = 14, m_D = 192,$$

$$m_E = 160.$$

**Задача 33.25.**

*Шуйчиков Артем*



$$R_C = 4, r_C = 2, i_C = 3,$$

$$R_D = 3, r_D = 2, i_D = 2,$$

$$m_A = 12, m_B = 12,$$

$$m_C = 448, m_D = 48,$$

$$m_E = 64.$$

**Кинетическая энергия системы. Приведенные массы**

№	$\mu_A$	$\mu_B$	$\mu_C$	$\mu_D$	$\mu_E$	$\mu$	
1	13	3	175	480	196	867	Аксенов Юрий
2	9	45	120	260	64	498	Бондаренко В.
3	9	54	150	125	400	738	Бублей Александр
4	15	5	21	78	45	164	Воробьев Кирилл
5	17	3	8	224	96	348	Гаджиев Джамал
6	10	1	52	54	9	126	Грицай Виктор
7	6	45	65	52	3	171	Желябовская Юля
8	18	6	14	48	20	106	Зайцева Евгения
9	13	4	24	28	216	285	Колесник Анастасия
10	12	6	70	125	400	613	Костюков Дмитрий
11	12	1	50	300	75	438	Коротеев Александр
12	6	45	25	52	27	155	Котенко Вячеслав
13	6	54	25	128	48	261	Мальцев Александр
14	17	2	56	325	500	900	Настаева Зухра
15	6	27	25	5	1	64	Светлов Вадим
16	13	1	5	36	81	136	Смирнова Анастасия
17	6	27	65	164	100	362	Степин Илья
18	21	4	48	125	225	423	Цвирко Федор
19	9	54	30	25	16	134	Ченцов Максим
20	10	6	104	117	81	318	Чигидина Лиза
21	17	1	40	42	96	196	Шабан Михаил
22	13	4	18	25	100	160	Шевцов Никита
23	19	6	12	5	36	78	Шимарова Светлана
24	17	1	7	18	5	48	Шинкина Анна
25	12	6	175	54	225	472	Шуйчиков Артем