

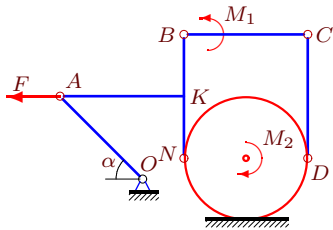
Принцип возможных перемещений (2)

Механизм с идеальными стационарными связями находится в равновесии под действием силы F и моментов M_1, M_2 . Длины звеньев даны в сантиметрах. Стержни, направление которых не указано, считать горизонтальными или вертикальными. Диск касается горизонтальной поверхности без проскальзывания. Найти величину F .

Курсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.— М.: ФИЗМАТЛИТ, 2008. — 384 с. (с.158.)

Задача D-24.1.

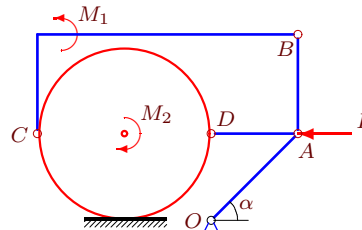
Архипов Даниил



$$M_1 = 44, M_2 = 32, R = 3, OA = 4\sqrt{2}, \\ AK = 6, BK = 3, KN = 3, CD = 6, \alpha = 45^\circ.$$

Задача D-24.2.

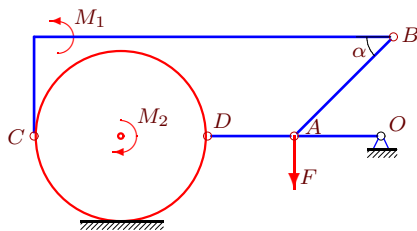
Бабичева Мария



$$M_1 = 39, M_2 = 124, R = 7, OA = 7\sqrt{2}, \\ AB = 8, AD = 7, \alpha = 45^\circ.$$

Задача D-24.3.

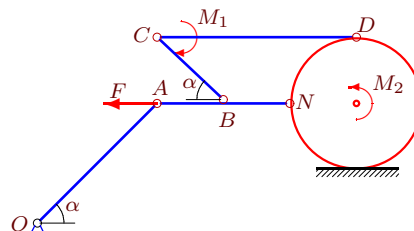
Балухин Семён



$$M_1 = 105, M_2 = 127, R = 7, OA = 7, \\ AB = 8\sqrt{2}, AD = 7, \alpha = 45^\circ.$$

Задача D-24.4.

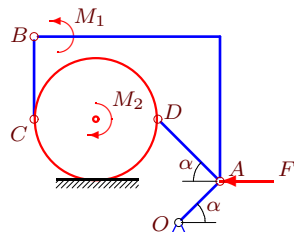
Беспалько Александр



$$M_1 = 216, M_2 = 177, R = 5, OA = 9\sqrt{2}, \\ AB = 5, BN = 5, BC = 5\sqrt{2}, CD = 15, \alpha = 45^\circ$$

Задача D-24.5.

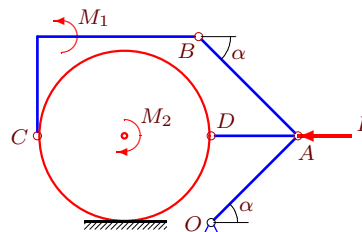
Бойматов Бахтиёр



$$M_1 = 66, M_2 = 176, R = 6, OA = 4\sqrt{2}, \\ AD = 6\sqrt{2}, BC = 8, \alpha = 45^\circ.$$

Задача D-24.6.

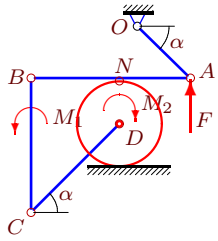
Бондаренко Николай



$$M_1 = 39, M_2 = 124, R = 7, OA = 7\sqrt{2}, \\ AB = 8\sqrt{2}, AD = 7, \alpha = 45^\circ.$$

Задача D-24.7.

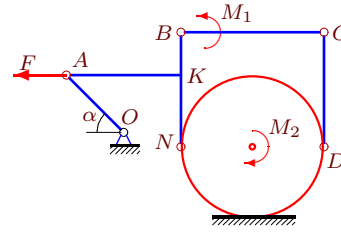
Борцов Борис



$M_1 = 132, M_2 = 114, R = 5, OA = 6\sqrt{2},$
 $CD = 10\sqrt{2}, AN = 8, AB = 18, \alpha = 45^\circ.$

Задача D-24.8.

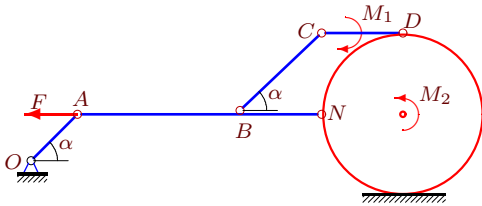
Булыгин Дмитрий



$M_1 = 76, M_2 = 96, R = 5, OA = 4\sqrt{2},$
 $AK = 8, BK = 3, KN = 5, CD = 8, \alpha = 45^\circ.$

Задача D-24.9.

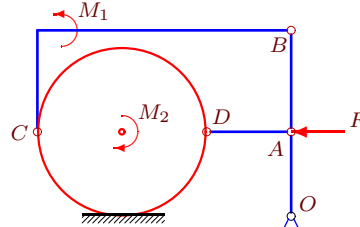
Воронова Екатерина



$M_1 = 240, M_2 = 512, R = 7, OA = 4\sqrt{2},$
 $AB = 14, BN = 7, BC = 7\sqrt{2}, CD = 7, \alpha = 45^\circ$

Задача D-24.10.

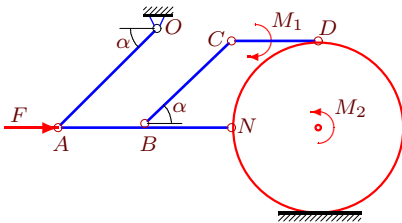
Галдеев Николай



$M_1 = 42, M_2 = 59, R = 5, OA = 5,$
 $AB = 6, AD = 5.$

Задача D-24.11.

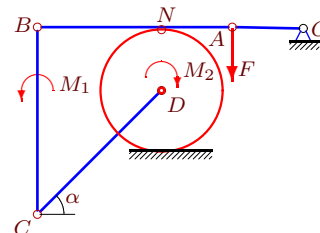
Грибов Вадим



$M_1 = 288, M_2 = 328, R = 7, OA = 8\sqrt{2},$
 $AB = 7, BN = 7, BC = 7\sqrt{2}, CD = 7, \alpha = 45^\circ$

Задача D-24.12.

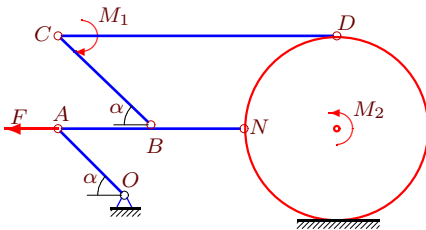
Давыдов Кирилл



$M_1 = 456, M_2 = 146, R = 7, OA = 8,$
 $CD = 14\sqrt{2}, AN = 8, AB = 22, \alpha = 45^\circ.$

Задача D-24.13.

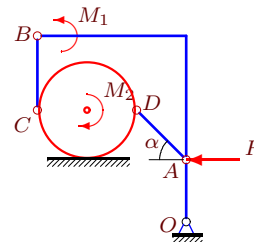
Друянов Антон



$M_1 = 405, M_2 = 620, R = 7, OA = 5\sqrt{2},$
 $AB = 7, BN = 7, BC = 7\sqrt{2}, CD = 21, \alpha = 45^\circ$

Задача D-24.14.

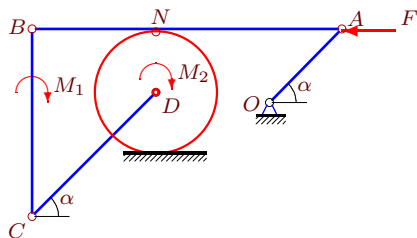
Егорова Елена



$M_1 = 315, M_2 = 345, R = 4, OA = 5,$
 $AD = 4\sqrt{2}, BC = 6, \alpha = 45^\circ.$

Задача D-24.15.

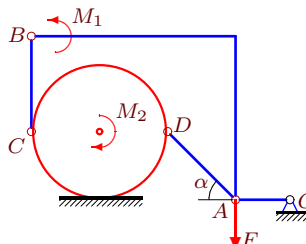
Егупов Егор



$M_1 = 63, M_2 = 707, R = 6, OA = 7\sqrt{2},$
 $CD = 12\sqrt{2}, AN = 18, AB = 30, \alpha = 45^\circ.$

Задача D-24.16.

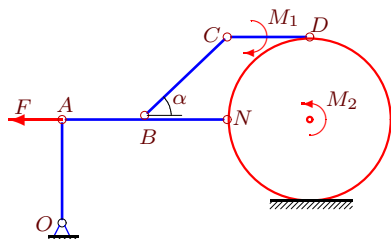
Зацепин Марк



$M_1 = 102, M_2 = 82, R = 5, OA = 4,$
 $AD = 5\sqrt{2}, BC = 7, \alpha = 45^\circ.$

Задача D-24.17.

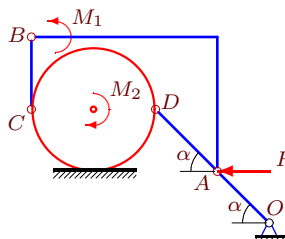
Исаев Дэни



$M_1 = 150, M_2 = 125, R = 4, OA = 5,$
 $AB = 4, BN = 4, BC = 4\sqrt{2}, CD = 4, \alpha = 45^\circ$

Задача D-24.18.

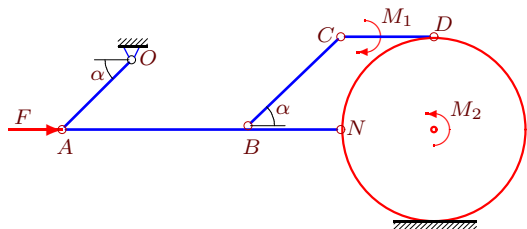
Кабанов Валерий



$M_1 = 630, M_2 = 665, R = 6, OA = 5\sqrt{2},$
 $AD = 6\sqrt{2}, BC = 7, \alpha = 45^\circ.$

Задача D-24.19.

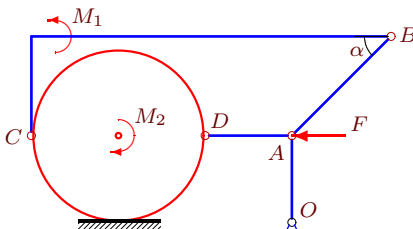
Киренко Владимир



$M_1 = 27, M_2 = 34, R = 4, OA = 3\sqrt{2},$
 $AB = 8, BN = 4, BC = 4\sqrt{2}, CD = 4, \alpha = 45^\circ$

Задача D-24.20.

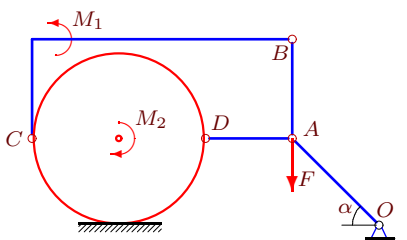
Кириллов Евгений



$M_1 = 60, M_2 = 125, R = 7, OA = 7,$
 $AB = 8\sqrt{2}, AD = 7, \alpha = 45^\circ.$

Задача D-24.21.

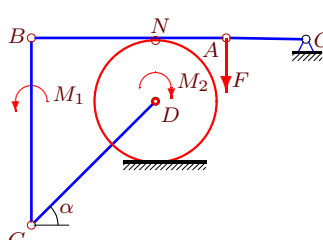
Киселев Михаил



$M_1 = 27, M_2 = 42, R = 7, OA = 7\sqrt{2},$
 $AB = 8, AD = 7, \alpha = 45^\circ.$

Задача D-24.22.

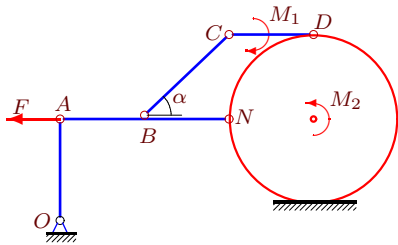
Кобзева Ксения



$M_1 = 144, M_2 = 150, R = 7, OA = 9,$
 $CD = 14\sqrt{2}, AN = 8, AB = 22, \alpha = 45^\circ.$

Задача D-24.23.

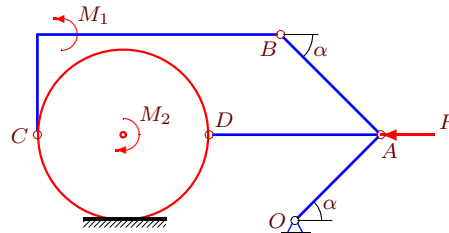
Кондин Александр



$M_1 = 54, M_2 = 123, R = 5, OA = 6,$
 $AB = 5, BN = 5, BC = 5\sqrt{2}, CD = 5, \alpha = 45^\circ$

Задача D-24.24.

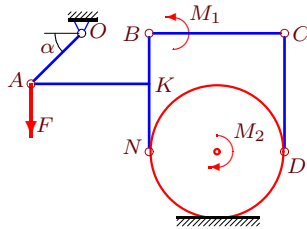
Корчагин Иван



$M_1 = 22, M_2 = 59, R = 6, OA = 6\sqrt{2},$
 $AB = 7\sqrt{2}, AD = 12, \alpha = 45^\circ.$

Задача D-24.25.

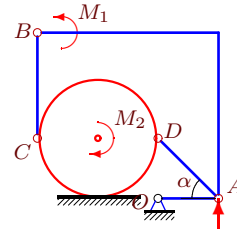
Кучуберия Лаша



$M_1 = 71, M_2 = 59, R = 4, OA = 3\sqrt{2},$
 $AK = 7, BK = 3, KN = 4, CD = 7, \alpha = 45^\circ.$

Задача D-24.26.

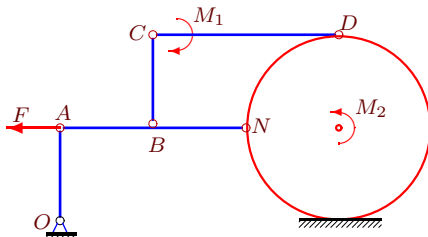
Логвиненко Валентина



$M_1 = M_2 = 23, R = 4, OA = 4,$
 $AD = 4\sqrt{2}, BC = 7, \alpha = 45^\circ.$

Задача D-24.27.

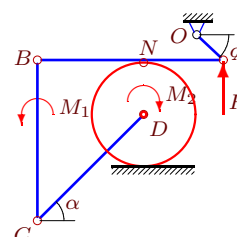
Логвинов Федор



$M_1 = 28, M_2 = 47, R = 4, OA = 4,$
 $AB = 4, BN = BC = 4, CD = 8.$

Задача D-24.28.

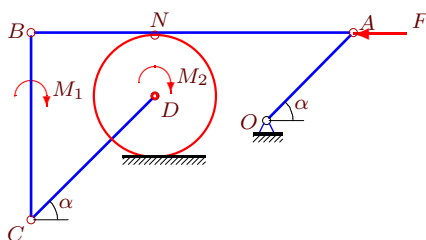
Мацко Ксения



$M_1 = 441, M_2 = 103, R = 6, OA = 3\sqrt{2},$
 $CD = 12\sqrt{2}, AN = 9, AB = 21, \alpha = 45^\circ.$

Задача D-24.29.

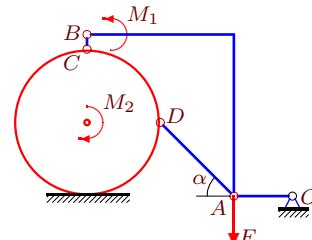
Моисеева Анастасия



$M_1 = 56, M_2 = 518, R = 5, OA = 7\sqrt{2},$
 $CD = 10\sqrt{2}, AN = 16, AB = 26, \alpha = 45^\circ.$

Задача D-24.30.

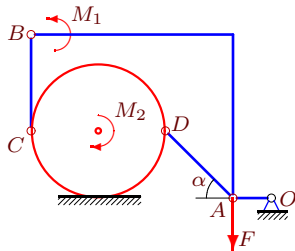
Мусанабиев Магомед



$M_1 = M_2 = 82, R = 5, OA = 4,$
 $AD = 5\sqrt{2}, BC = 1, \alpha = 45^\circ.$

Задача D-24.31.

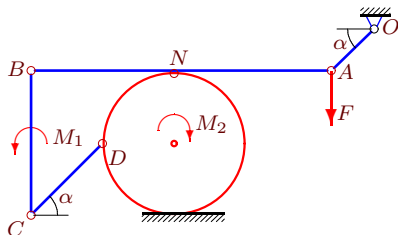
Муханов Владислав



$M_1 = 58, M_2 = 170, R = 7, OA = 4,$
 $AD = 7\sqrt{2}, BC = 10, \alpha = 45^\circ.$

Задача D-24.33.

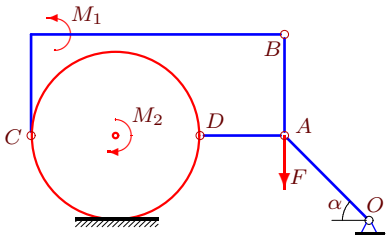
Ольмезов Омар



$M_1 = 363, M_2 = 690, R = 5, OA = 3\sqrt{2},$
 $CD = 5\sqrt{2}, AN = 11, AB = 21, \alpha = 45^\circ.$

Задача D-24.35.

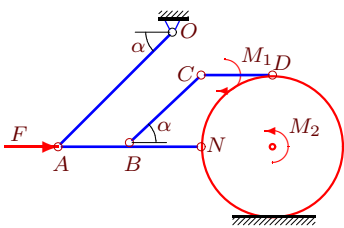
Охлопкова Зинаида



$M_1 = 19, M_2 = 20, R = 5, OA = 5\sqrt{2},$
 $AB = 6, AD = 5, \alpha = 45^\circ.$

Задача D-24.37.

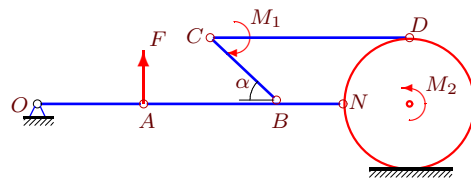
Перехватов Андрей



$M_1 = 168, M_2 = 152, R = 5, OA = 8\sqrt{2},$
 $AB = 5, BN = 5, BC = 5\sqrt{2}, CD = 5, \alpha = 45^\circ$

Задача D-24.32.

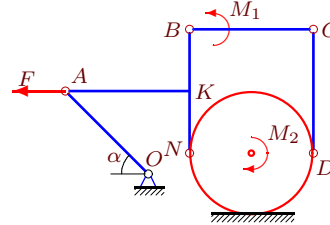
Никулина Алина



$M_1 = 1440, M_2 = 1448, R = 5, OA = 8,$
 $AB = 10, BN = 5, BC = 5\sqrt{2}, CD = 15, \alpha = 45^\circ$

Задача D-24.34.

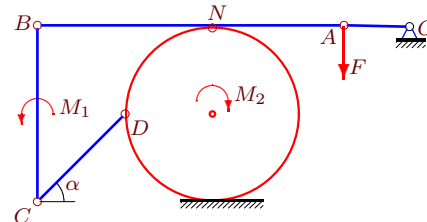
Оралбеков Кирилл



$M_1 = 56, M_2 = 32, R = 3, OA = 4\sqrt{2},$
 $AK = 6, BK = 3, KN = 3, CD = 6, \alpha = 45^\circ.$

Задача D-24.36.

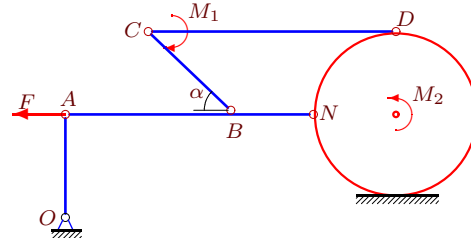
Палагицкий Сергей



$M_1 = 300, M_2 = 601, R = 8, OA = 6,$
 $CD = 8\sqrt{2}, AN = 12, AB = 28, \alpha = 45^\circ.$

Задача D-24.38.

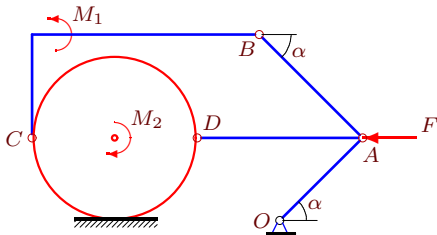
Пихенько Анна



$M_1 = 675, M_2 = 515, R = 4, OA = 5,$
 $AB = 8, BN = 4, BC = 4\sqrt{2}, CD = 12, \alpha = 45^\circ$

Задача D-24.39.

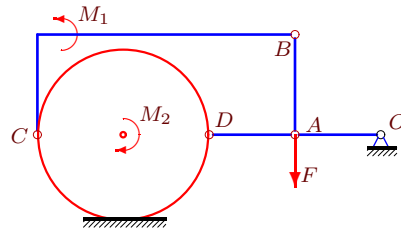
Польшиков Александр



$M_1 = 14, M_2 = 23, R = 4, OA = 4\sqrt{2},$
 $AB = 5\sqrt{2}, AD = 8, \alpha = 45^\circ.$

Задача D-24.40.

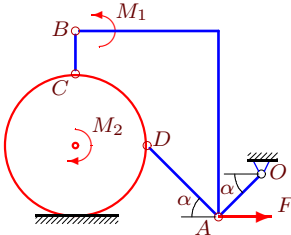
Пронин Сергей



$M_1 = 90, M_2 = 91, R = 6, OA = 6,$
 $AB = 7, AD = 6.$

Задача D-24.41.

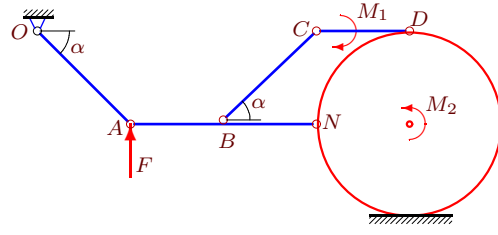
Росляков Георгий



$M_1 = 66, M_2 = 123, R = 5, OA = 3\sqrt{2},$
 $AD = 5\sqrt{2}, BC = 3, \alpha = 45^\circ.$

Задача D-24.42.

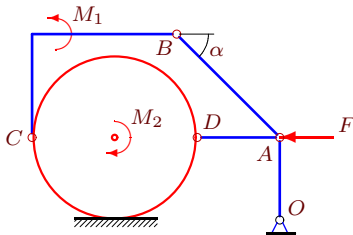
Сирж Елизавета



$M_1 = 13, M_2 = 30, R = 6, OA = 6\sqrt{2},$
 $AB = 6, BN = 6, BC = 6\sqrt{2}, CD = 6, \alpha = 45^\circ$

Задача D-24.43.

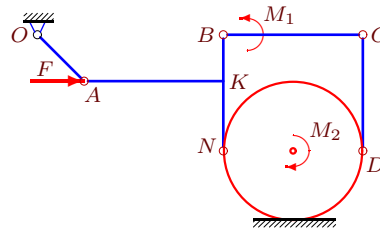
Соловьёв Алексей



$M_1 = 33, M_2 = 35, R = 4, OA = 4,$
 $AB = 5\sqrt{2}, AD = 4, \alpha = 45^\circ.$

Задача D-24.44.

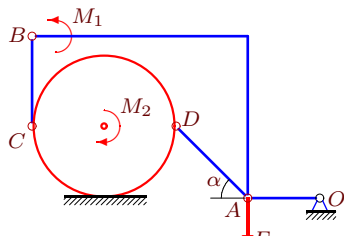
Стрелков Владислав



$M_1 = 26, M_2 = 20, R = 3, OA = 2\sqrt{2},$
 $AK = 6, BK = 2, KN = 3, CD = 5, \alpha = 45^\circ.$

Задача D-24.45.

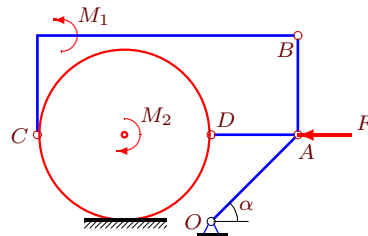
Суконкин Владислав



$M_1 = 41, M_2 = 25, R = 4, OA = 4,$
 $AD = 4\sqrt{2}, BC = 5, \alpha = 45^\circ.$

Задача D-24.46.

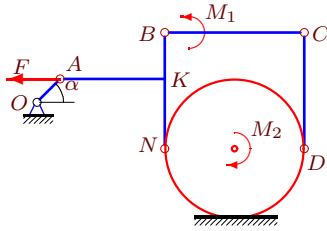
Тихов Семен



$M_1 = 39, M_2 = 124, R = 7, OA = 7\sqrt{2},$
 $AB = 8, AD = 7, \alpha = 45^\circ.$

Задача D-24.47.

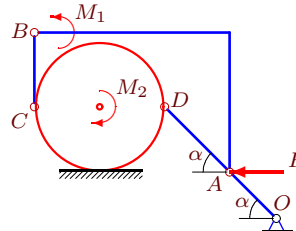
Труханов Андрей



$M_1 = 7, M_2 = 31, R = 6, OA = 2\sqrt{2},$
 $AK = 9, BK = 4, KN = 6, CD = 10, \alpha = 45^\circ.$

Задача D-24.48.

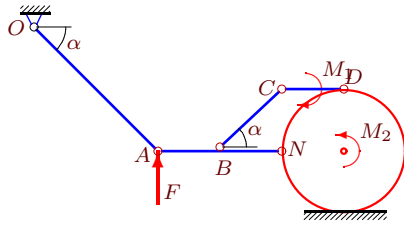
Урман Никита



$M_1 = 420, M_2 = 440, R = 7, OA = 5\sqrt{2},$
 $AD = 7\sqrt{2}, BC = 8, \alpha = 45^\circ.$

Задача D-24.49.

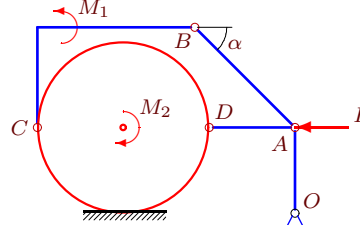
Фортальнов Степан



$M_1 = 34, M_2 = 24, R = 4, OA = 8\sqrt{2},$
 $AB = 4, BN = 4, BC = 4\sqrt{2}, CD = 4, \alpha = 45^\circ$

Задача D-24.50.

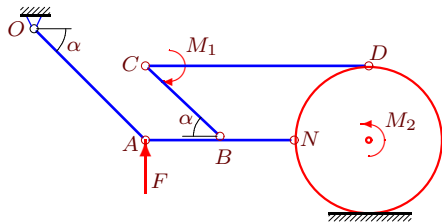
Хусниязов Альберт



$M_1 = 51, M_2 = 89, R = 6, OA = 6,$
 $AB = 7\sqrt{2}, AD = 6, \alpha = 45^\circ.$

Задача D-24.51.

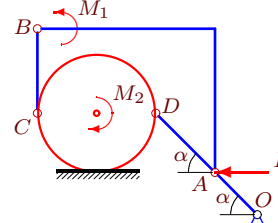
Шарчевич Денис



$M_1 = 27, M_2 = 38, R = 4, OA = 6\sqrt{2},$
 $AB = 4, BN = 4, BC = 4\sqrt{2}, CD = 12, \alpha = 45^\circ$

Задача D-24.52.

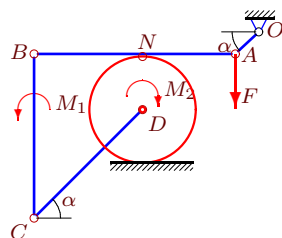
Шмакотин Артур



$M_1 = 525, M_2 = 635, R = 7, OA = 5\sqrt{2},$
 $AD = 7\sqrt{2}, BC = 10, \alpha = 45^\circ.$

Задача D-24.53.

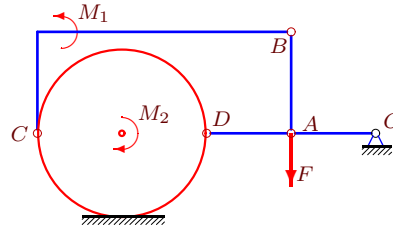
Шумилов Алексей



$M_1 = 522, M_2 = 524, R = 7, OA = 3\sqrt{2},$
 $CD = 14\sqrt{2}, AN = 12, AB = 26, \alpha = 45^\circ.$

Задача D-24.54.

Нагорная М.



$M_1 = 75, M_2 = 61, R = 5, OA = 5,$
 $AB = 6, AD = 5.$

D-24

Ответы.
Принцип возможных перемещений (2)

21-Apr-18

№	ω_{AB_z}	ω_{BC_z}	ω_{CD_z}	ω_{DA_z}	$\omega_{диск_z}$	ω_{OA_z}	F	
1	0	4	0	—	4	3	—4	Архипов Даниил
2	2	2	—	0	3	3	14	Бабичева Мария
3	-1	-1	—	-3	0	3	5	Балухин Семён
4	-9	9	3	—	9	5	—21	Беспалько Александр
5	4	7	—	0	6	9	22	Бойматов Бахтиёр
6	2	2	—	0	3	3	14	Бондаренко Николай
7	15	6	15	—	-12	20	—18	Борцов Борис
8	0	4	0	—	4	5	4	Бульгин Дмитрий
9	-8	12	-8	—	12	21	—96	Воронова Екатерина
10	1	1	—	-3	3	3	9	Галдеев Николай
11	8	-8	8	—	-8	7	88	Грибов Вадим
12	-3	-2	-3	—	0	3	38	Давыдов Кирилл
13	0	15	10	—	15	21	—50	Друянов Антон
14	15	55	—	-45	45	72	30	Егорова Елена
15	42	49	42	—	63	108	63	Егунов Егор
16	-2	-2	—	-2	-2	5	2	Зацепин Марк
17	-5	10	-5	—	10	8	—50	Исаев Дэни
18	-35	25	—	-105	0	126	35	Кабанов Валерий
19	2	-3	2	—	-3	4	13	Киреенко Владимир
20	1	1	—	-3	3	3	15	Кириллов Евгений
21	0	0	—	-2	1	1	6	Киселев Михаил
22	-9	-6	-9	—	0	8	12	Кобзева Ксения
23	-3	6	-3	—	6	5	—30	Кондин Александр
24	1	1	—	0	2	2	8	Корчагин Иван
25	8	-11	8	—	-11	4	11	Кучуберия Лапа
26	1	1	—	1	1	2	0	Логвиненко Валентина
27	-2	4	1	—	4	4	—10	Логвинов Федор
28	12	5	12	—	-9	36	—29	Мацко Ксения
29	35	42	35	—	56	80	56	Моисеева Анастасия
30	-2	-2	—	-2	-2	5	0	Мусанабиев Магомед
31	-2	-2	—	-2	-2	7	—8	Муханов Владислав
32	-24	0	-8	—	0	45	—32	Никулина Алина
33	-30	-30	-27	—	-33	110	—36	Ольмезов Омар
34	0	4	0	—	4	3	—8	Оралбеков Кирилл
35	0	0	—	-2	1	1	4	Охлопкова Зинаида
36	-1	-1	-2	—	0	2	25	Палагицкий Сергей
37	8	-8	8	—	-8	5	64	Перехватов Андрей
38	-15	45	25	—	45	36	—35	Пихенько Анна
39	1	1	—	0	2	2	4	Польшиков Александр
40	-1	-1	—	-3	0	3	5	Пронин Сергей
41	-3	-3	—	0	-6	10	—18	Росляков Георгий
42	0	-1	0	—	-1	1	5	Сирик Елизавета
43	1	1	—	-3	3	3	6	Соловьёв Алексей
44	0	-2	0	—	-2	3	2	Стрелков Владислав
45	-1	-1	—	-1	-1	2	2	Суконкин Владислав
46	2	2	—	0	3	3	14	Тихов Семен
47	-4	5	-4	—	5	3	20	Труханов Андрей
48	-20	15	—	-60	0	84	20	Урман Никита
49	0	-2	0	—	-2	1	6	Фортальнов Степан
50	1	1	—	-3	3	3	12	Хуснияров Альберт
51	0	-3	-2	—	-3	2	5	Шарчевич Денис
52	-5	2	—	-15	0	21	25	Шмакотин Артур
53	-21	-20	-21	—	-18	84	4	Шумилов Алексей
54	-1	-1	—	-3	0	3	5	Нагорная М.

