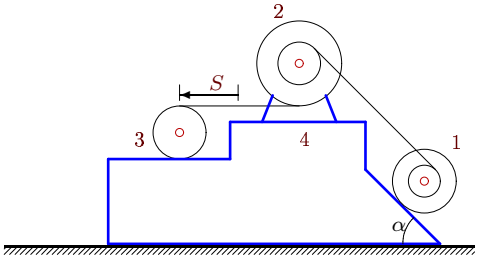
Теорема о центре масс системы

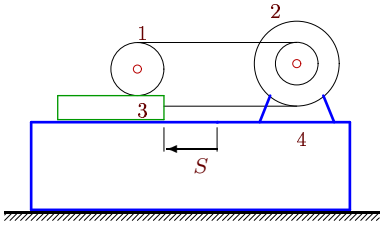
Механизм, состоящий из трех тел, установлен на призме, скользящей по гладкой плоскости. Нити, соединяющие тела, параллельны плоскостям. Под действием внутренних сил из состояния покоя механизм пришел в движение. Центр цилиндра (блока) или бруска сместился относительно призмы на расстояние S. Найти смещение призмы. Массы даны в килограммах, радиусы и смещение — в сантиметрах.

Задача D-4.1. *Алексеев Р.О.*



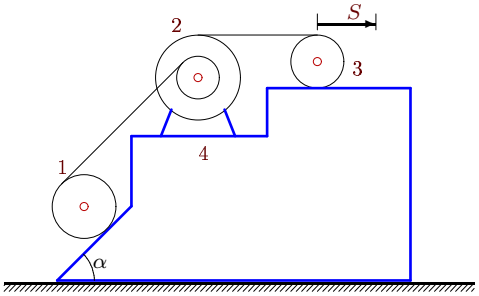
$R_1 = 5$, $r_1 = 3$, $R_2 = 4$, $r_2 = 3$, $m_1 = 4$, $m_2 = 12$, $m_3 = 15$, $m_4 = 10$, $S = 123$, $\cos\alpha = 0{,}8$.

Задача D-4.2. *Ананьев А.Е.*



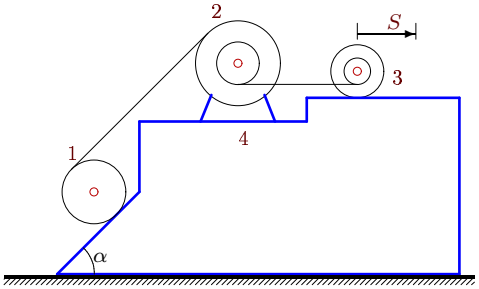
$R_2 = 4$, $r_2 = 3$, $m_1 = 8$, $m_2 = 10$, $m_3 = 15$, $m_4 = 10$, $S = 86$.

Задача D-4.3. *Арчаков А.Д.*



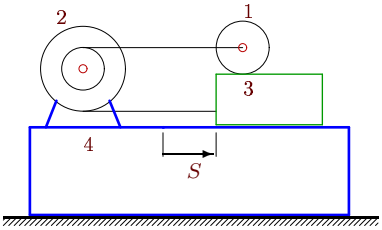
$R_2 = 4$, $r_2 = 3$, $m_1 = 20$, $m_2 = 10$, $m_3 = 12$, $m_4 = 13$, $S = 110$, $\cos\alpha = 0{,}6$.

Задача D-4.4. *Бакленев Н.*



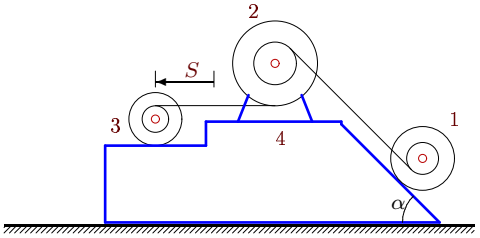
$R_2 = 4$, $r_2 = 2$, $R_3 = 3$, $r_3 = 2$, $m_1 = 5$, $m_2 = 13$, $m_3 = 13$, $m_4 = 12$, $S = 43$, $\cos\alpha = 0{,}6$.

Задача D-4.5. *Болтунова В.О.*



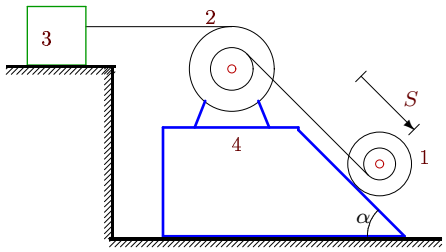
$R_2 = 5$, $r_2 = 3$, $m_1 = 5$, $m_2 = 12$, $m_3 = 15$, $m_4 = 15$, $S = 188$.

Задача D-4.6. *Васильева А. А.*



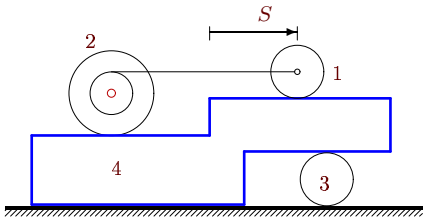
$R_1 = 4$, $r_1 = 3$, $R_2 = 4$, $r_2 = 2$, $R_3 = 4$, $r_3 = 2$, $m_1 = 5$, $m_2 = 13$, $m_3 = 10$, $m_4 = 15$, $S = 86$, $\cos\alpha = 0{,}8$.

Задача D-4.7. *Видякин В.Г.*



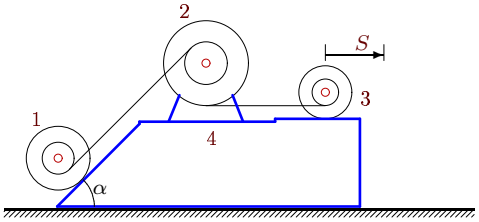
$R_1 = 5$, $r_1 = 3$, $R_2 = 4$, $r_2 = 3$, $m_1 = 10$, $m_2 = 15$, $m_3 = 30$, $m_4 = 13$, $S = 272$, $\cos\alpha = 0{,}8$.

Задача D-4.8. *Воробьева Д.*



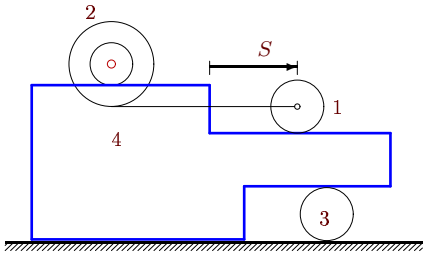
$R_2 = 5$, $r_2 = 3$, $m_1 = 12$, $m_2 = 16$, $m_3 = 20$, $m_4 = 12$, $S = 150$.

Задача D-4.9. *Гарт Е.А.*



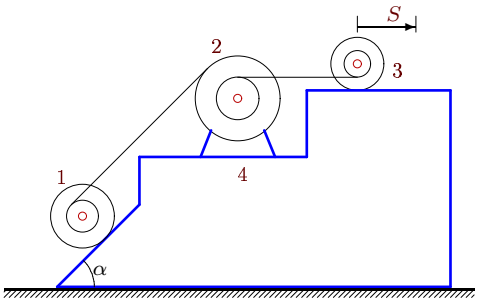
$R_1 = 3$, $r_1 = 2$, $R_2 = 4$, $r_2 = 3$, $R_3 = 4$, $r_3 = 2$, $m_1 = 16$, $m_2 = 10$, $m_3 = 15$, $m_4 = 10$, $S = 51$, $\alpha = \pi/3$.

Задача D-4.10. *Гурьева Т.В.*



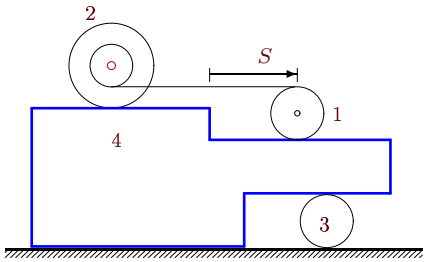
$R_2 = 4$, $r_2 = 3$, $m_1 = 15$, $m_2 = 2$, $m_3 = 26$, $m_4 = 12$, $S = 126$.

Задача D-4.11. *Дронов С.А.*



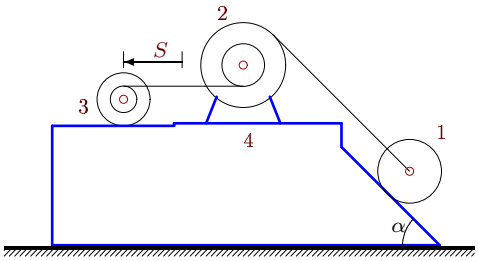
$R_1 = 4$, $r_1 = 3$, $R_2 = 3$, $r_2 = 2$, $R_3 = 5$, $r_3 = 3$, $m_1 = 35$, $m_2 = 13$, $m_3 = 10$, $m_4 = 13$, $S = 213$, $\alpha = \pi/3$.

Задача D-4.12. *Зыков А.*



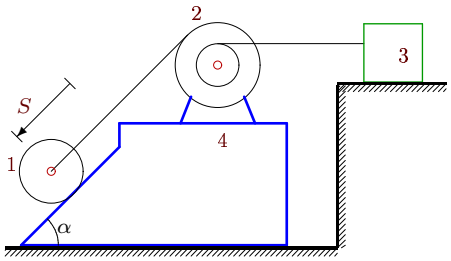
$R_2 = 4$, $r_2 = 3$, $m_1 = 12$, $m_2 = 2$, $m_3 = 26$, $m_4 = 12$, $S = 78$.

Задача D-4.13. *Касимов Д.Р.*



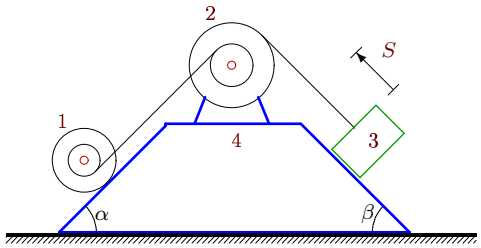
$R_2 = 5$, $r_2 = 3$, $R_3 = 5$, $r_3 = 3$, $m_1 = 15$, $m_2 = 12$, $m_3 = 15$, $m_4 = 12$, $S = 216$, $\cos\alpha = 0{,}8$.

Задача D-4.14. *Ковальчук В*



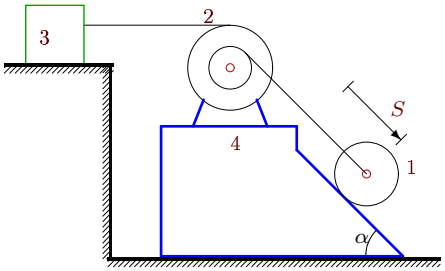
$R_2 = 3$, $r_2 = 2$, $m_1 = 10$, $m_2 = 10$, $m_3 = 3$, $m_4 = 10$, $S = 66$, $\cos\alpha = 0{,}6$.

Задача D-4.15. *Косенок Д.А.*



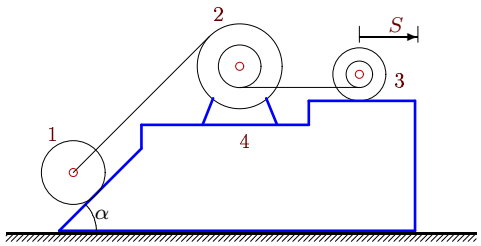
$R_1 = 3$, $r_1 = 2$, $R_2 = 5$, $r_2 = 3$, $m_1 = 20$, $m_2 = 10$, $m_3 = 15$, $m_4 = 15$, $S = 120$, $\alpha = \pi/3$, $\cos\beta = 0{,}8$.

Задача D-4.16. *Лукьянов Л.М.*



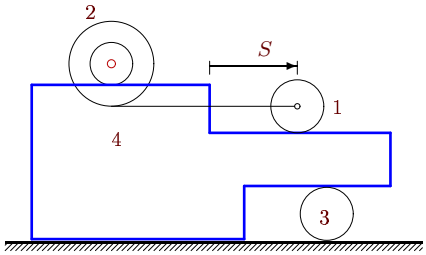
$R_2 = 5$, $r_2 = 3$, $m_1 = 10$, $m_2 = 10$, $m_3 = 6$, $m_4 = 12$, $S = 76$, $\cos\alpha = 0{,}8$.

Задача D-4.17. *Моргун Е.В.*



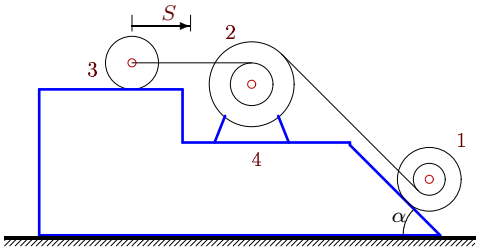
$R_2 = 5$, $r_2 = 3$, $R_3 = 3$, $r_3 = 2$, $m_1 = 18$, $m_2 = 15$, $m_3 = 12$, $m_4 = 12$, $S = 171$, $\alpha = \pi/3$.

Задача D-4.18. *Павлова Е.А.*



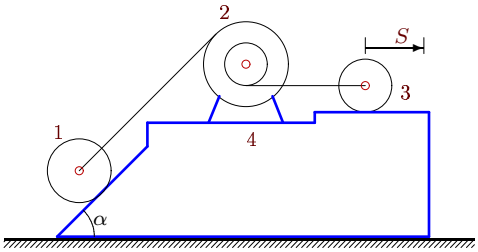
$R_2 = 4$, $r_2 = 3$, $m_1 = 12$, $m_2 = 2$, $m_3 = 20$, $m_4 = 15$, $S = 78$.

Задача D-4.19. *Панфилов К.*



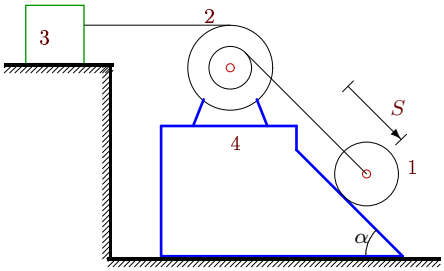
$R_1 = 4$, $r_1 = 3$, $R_2 = 5$, $r_2 = 3$, $m_1 = 3$, $m_2 = 13$, $m_3 = 15$, $m_4 = 15$, $S = 92$, $\cos\alpha = 0{,}8$.

Задача D-4.20. *Плетнева Е. А.*



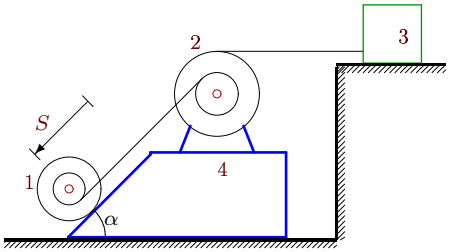
$R_2 = 4$, $r_2 = 3$, $m_1 = 5$, $m_2 = 10$, $m_3 = 12$, $m_4 = 13$, $S = 120$, $\cos\alpha = 0{,}6$.

Задача D-4.21. *Пономарева А.*



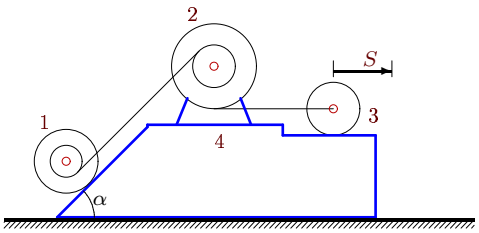
$R_2 = 4$, $r_2 = 3$, $m_1 = 10$, $m_2 = 10$, $m_3 = 6$, $m_4 = 13$, $S = 78$, $\cos\alpha = 0{,}8$.

Задача D-4.22. *Пузин М. О.*



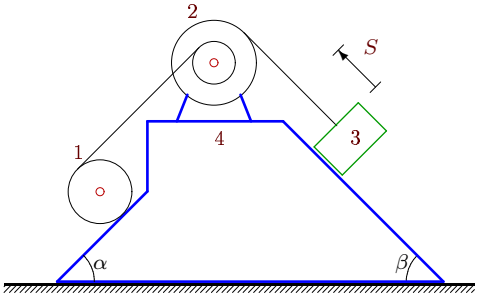
$R_1 = 4$, $r_1 = 2$, $R_2 = 4$, $r_2 = 2$, $m_1 = 10$, $m_2 = 15$, $m_3 = 1$, $m_4 = 15$, $S = 82$, $\cos\alpha = 0{,}6$.

Задача D-4.23. *Рассолов А.*



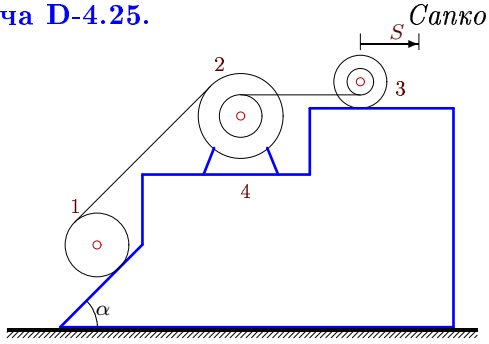
$R_1 = 4,\ r_1 = 2,\ R_2 = 4,\ r_2 = 2,\ m_1 = 5,\ m_2 = 15,$
$m_3 = 13,\ m_4 = 12,\ S = 135,\ \cos\alpha = 0{,}6.$

Задача D-4.24. *Рябов М.Н.*



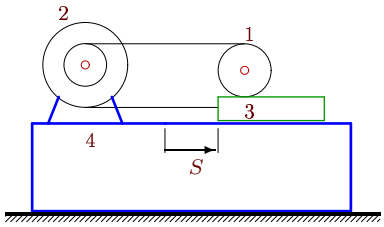
$R_2 = 3,\quad r_2 = 2,\quad m_1 = 6,\quad m_2 = 13,\quad m_3 = 6,$
$m_4 = 13,\ S = 38,\ \alpha = \beta = \pi/3.$

Задача D-4.25. *Сапко П. А.*



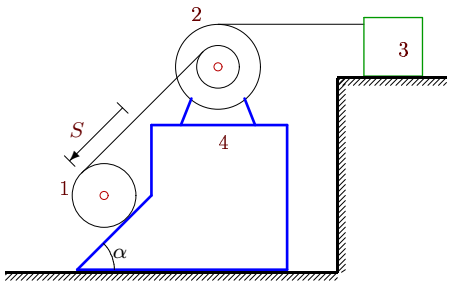
$R_2 = 3,\ r_2 = 2,\ R_3 = 4,\ r_3 = 2,\ m_1 = 16,\ m_2 = 10,$
$m_3 = 10,\ m_4 = 10,\ S = 46,\ \alpha = \pi/3.$

Задача D-4.26. *Солдаткин Л.И.*



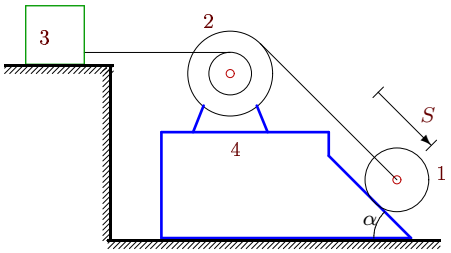
$R_2 = 4,\quad r_2 = 3,\quad m_1 = 8,\quad m_2 = 12,\quad m_3 = 15,$
$m_4 = 10,\ S = 135.$

Задача D-4.27. *Софроницкий А.П.*



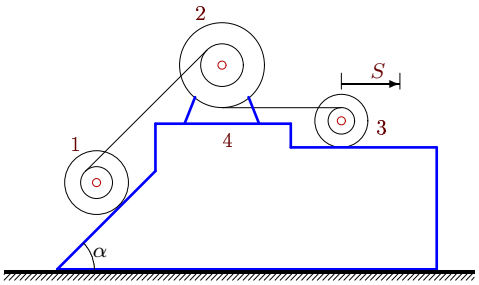
$R_2 = 4,\quad r_2 = 2,\quad m_1 = 5,\quad m_2 = 10,\quad m_3 = 2,$
$m_4 = 15,\ S = 64,\ \cos\alpha = 0{,}6.$

Задача D-4.28. *Сохина Н. М.*



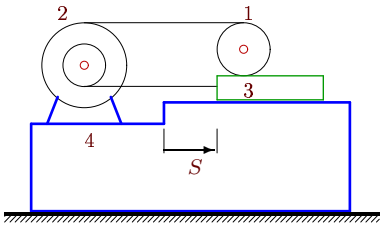
$R_2 = 4,\quad r_2 = 2,\quad m_1 = 10,\quad m_2 = 10,\quad m_3 = 2,$
$m_4 = 15,\ S = 111,\ \cos\alpha = 0{,}8.$

Задача D-4.29. *Терлецкий А.С.*



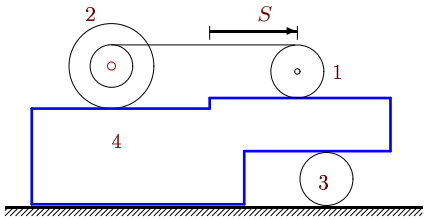
$R_1 = 3,\ r_1 = 2,\ R_2 = 5,\ r_2 = 3,\ R_3 = 4,\ r_3 = 2,$
$m_1 = 100,\ m_2 = 13,\ m_3 = 12,\ m_4 = 12,\ S = 137,$
$\alpha = \pi/3.$

Задача D-4.30. *Умрихин А.Ю*



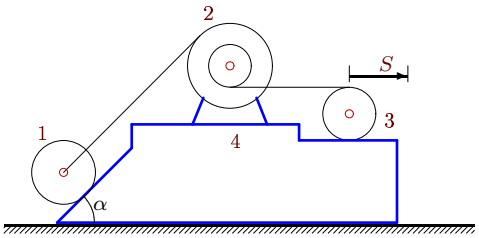
$R_2 = 5,\quad r_2 = 3,\quad m_1 = 6,\quad m_2 = 13,\quad m_3 = 12,$
$m_4 = 12,\ S = 43.$

Задача D-4.31. *Филиппов А.С.*



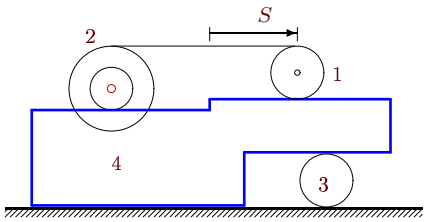
$R_2 = 5$, $r_2 = 3$, $m_1 = 15$, $m_2 = 16$, $m_3 = 26$, $m_4 = 12$, $S = 224$.

Задача D-4.32. *Финогенова Е.М.*



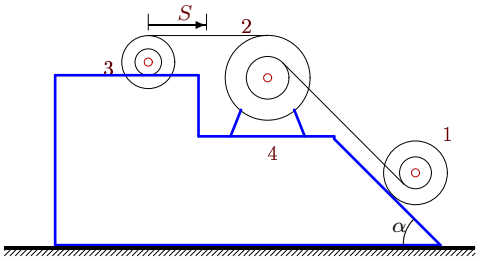
$R_2 = 4$, $r_2 = 2$, $m_1 = 1$, $m_2 = 10$, $m_3 = 10$, $m_4 = 15$, $S = 108$, $\alpha = \pi/3$.

Задача D-4.33. *Фоломкин М.А.*



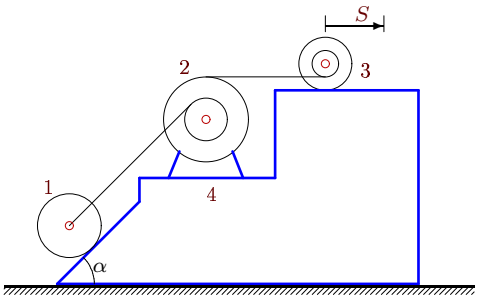
$R_2 = 5$, $r_2 = 3$, $m_1 = 15$, $m_2 = 8$, $m_3 = 30$, $m_4 = 13$, $S = 204$.

Задача D-4.34. *Цымбалюк А.*



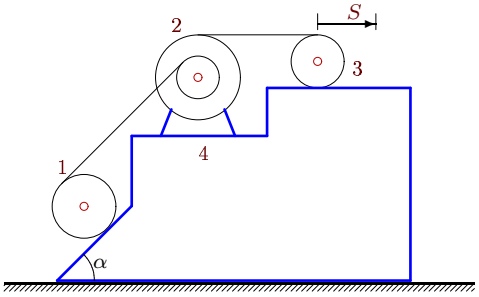
$R_1 = 3$, $r_1 = 2$, $R_2 = 4$, $r_2 = 3$, $R_3 = 5$, $r_3 = 3$, $m_1 = 5$, $m_2 = 13$, $m_3 = 12$, $m_4 = 10$, $S = 80$, $\cos\alpha = 0{,}8$.

Задача D-4.35. *Чумаченко Н. Д.*



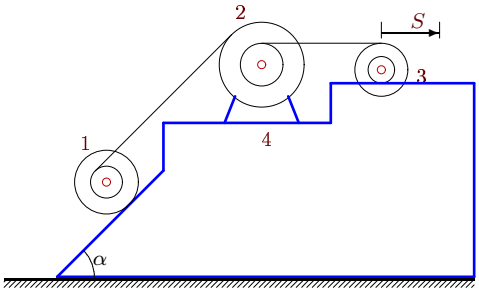
$R_2 = 4$, $r_2 = 3$, $R_3 = 4$, $r_3 = 3$, $m_1 = 80$, $m_2 = 13$, $m_3 = 15$, $m_4 = 10$, $S = 236$, $\cos\alpha = 0{,}6$.

Задача D-4.36. *Шаталов А. В.*



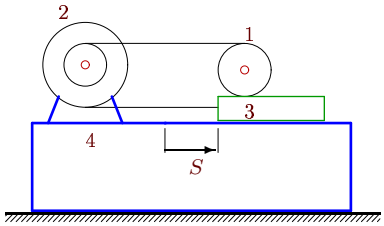
$R_2 = 4$, $r_2 = 3$, $m_1 = 20$, $m_2 = 10$, $m_3 = 12$, $m_4 = 13$, $S = 165$, $\cos\alpha = 0{,}6$.

Задача D-4.37. *Швыдков Д. М.*



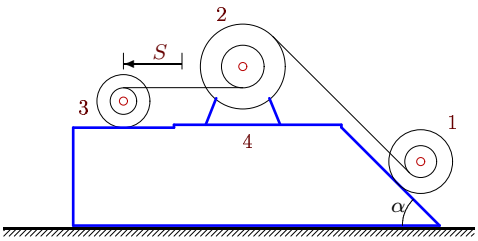
$R_1 = 3$, $r_1 = 2$, $R_2 = 5$, $r_2 = 3$, $R_3 = 4$, $r_3 = 3$, $m_1 = 5$, $m_2 = 13$, $m_3 = 15$, $m_4 = 12$, $S = 90$, $\cos\alpha = 0{,}6$.

Задача D-4.38. *Шмелев Д.О.*



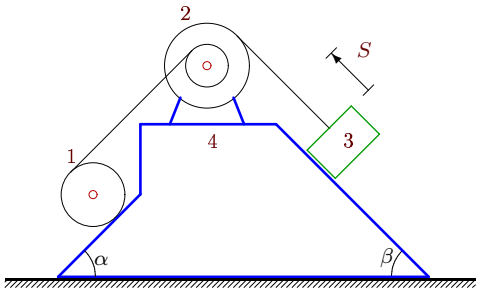
$R_2 = 5$, $r_2 = 3$, $m_1 = 10$, $m_2 = 13$, $m_3 = 12$, $m_4 = 15$, $S = 100$.

Задача D-4.39. *Щербинина А.К.*



$R_1 = 3,\ r_1 = 2,\ R_2 = 4,\ r_2 = 2,\ R_3 = 5,\ r_3 = 3,$ $m_1 = 25,\ m_2 = 13,\ m_3 = 10,\ m_4 = 15,\ S = 126,$ $\cos\alpha = 0{,}8.$

Задача D-4.40. *Щур В.С.*



$R_2 = 4,\quad r_2 = 3,\quad m_1 = 80,\quad m_2 = 10,\quad m_3 = 4,$ $m_4 = 13,\ S = 321,\ \cos\alpha = 0{,}6,\ \beta = \pi/3.$

D-4

Ответы.

Теорема о центре масс системы

19-Nov-17

№	Δ_4	
1	36	Алексеев Р.О.
2	32	Ананьев А.Е.
3	42	Арчаков А.Д.
4	12	Бакленев Н.
5	48	Болтунова В.О.
6	4	Васильева А. А.
7	96	Видякин В.Г.
8	66	Воробьева Д.
9	6	Гарт Е.А.
10	27	Гурьева Т.В.
11	48	Дронов С.А.
12	56	Зыков А.
13	68	Касимов Д.Р.
14	16	Ковальчук В
15	60	Косенок Д.А.
16	36	Лукьянов Л.М.
17	21	Моргун Е.В.
18	12	Павлова Е.А.
19	62	Панфилов К.
20	24	Плетнева Е. А.
21	32	Пономарева А.
22	14	Пузин М. О.
23	30	Рассолов А.
24	4	Рябов М.Н.
25	13	Сапко П. А.
26	48	Солдаткин Л.И.
27	22	Софроницкий А.П.
28	27	Сохина Н. М.
29	15	Терлецкий А.С.
30	10	Умрихин А.Ю
31	140	Филиппов А.С.
32	24	Финогенова Е.М.
33	84	Фоломкин М.А.
34	72	Цымбалюк А.
35	48	Чумаченко Н. Д.
36	63	Шаталов А. В.
37	44	Швыдков Д. М.
38	28	Шмелев Д.О.
39	364	Щербинина А.К.
40	60	Щур В.С.