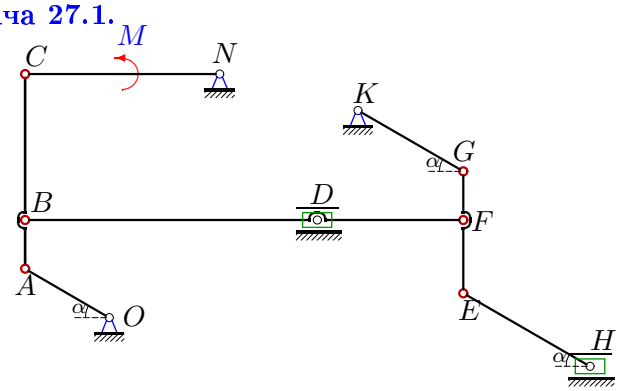
Условие равновесия механизма

Плоский многозвенный механизм с одной степенью свободы находится в равновесии. К кривошипу OA приложен момент M. Размеры даны в сантиметрах. Дан ряд p распределения дискретной случайной величины силы сопротивления в ползунах $T_i, i = 1, ..., 4$. Найти математическое ожидание момента M.

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

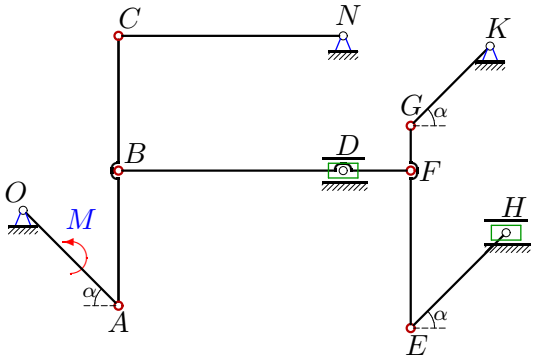
Задача 27.1.



Алексахин Антон

$\alpha = 30°$,
$AB = 10$, $BC = 30$,
$DB = 60$, $DF = 30$,
$NC = 40$, $EH = 30$,
$FE = 15$, $FG = 10$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.4, 0.2]$,
$T = [8, 7.5, 6, 5]$ Н.

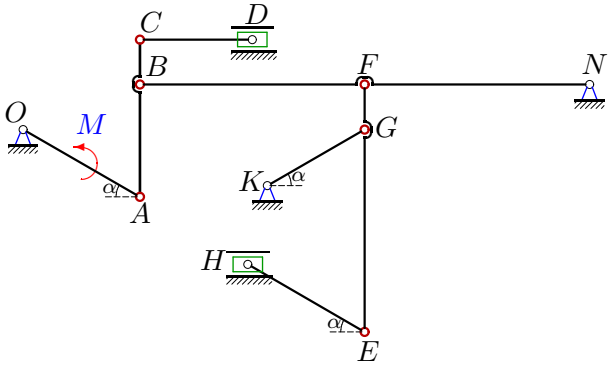
Задача 27.2.



Балов Артём Игоревич

$\alpha = 45°$,
$AB = 30$, $BC = 30$,
$DB = 50$, $DF = 15$,
$NC = 50$, $EH = 30$,
$FE = 35$, $FG = 10$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.4, 0.2]$,
$T = [8, 7.5, 6.5, 5]$ Н.

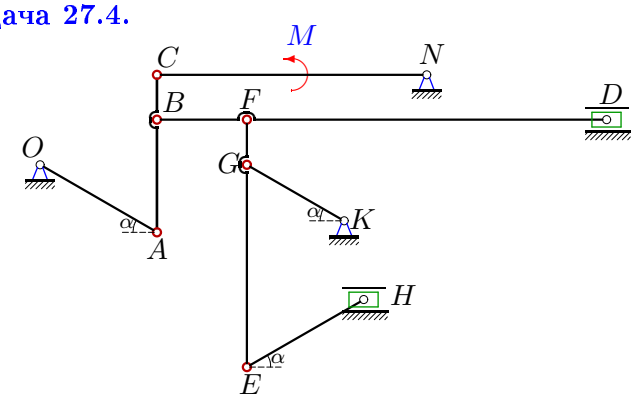
Задача 27.3.



Белоусов Георгий Михайлович

$\alpha = 30°$,
$AB = 25$, $BC = 10$,
$BF = 50$, $NF = 50$,
$CD = 25$, $EH = 30$,
$FG = 10$, $GE = 45$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.35, 0.25]$,
$T = [8.5, 7, 6, 5.5]$ Н.

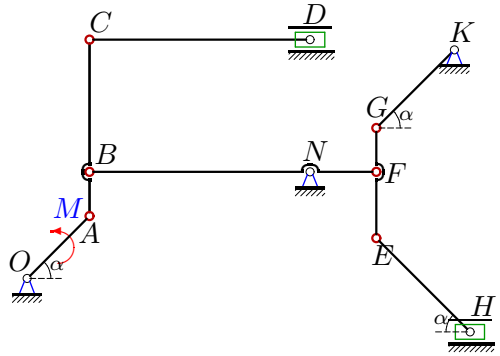
Задача 27.4.



Бондаренко Андрей

$\alpha = 30°$,
$AB = 25$, $BC = 10$,
$BF = 20$, $FD = 80$,
$NC = 60$, $EH = 30$,
$FE = 55$, $FG = 10$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.35, 0.25]$,
$T = [8.5, 7.5, 6, 5]$ Н.

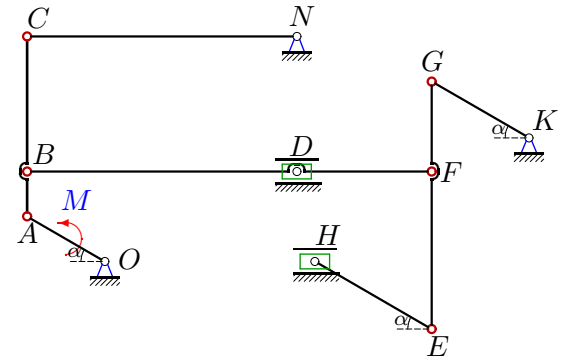
Задача 27.5.



Гильманов Булат Наильевич

$\alpha = 45°$,
$AB = 10$, $BC = 30$,
$NB = 50$, $NF = 15$,
$CD = 50$, $EH = 30$,
$FE = 15$, $FG = 10$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.35, 0.25]$,
$T = [8.5, 7, 6, 5.5]$ Н.

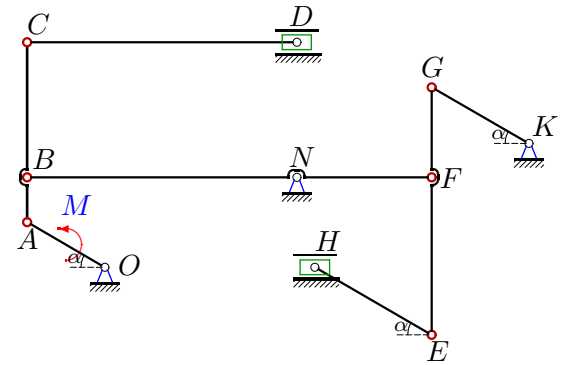
Задача 27.6.



Егоров Всеволод Кириллович

$\alpha = 30°$,
$AB = 10$, $BC = 30$,
$DB = 60$, $DF = 30$,
$NC = 60$, $EH = 30$,
$FE = 35$, $FG = 20$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.35, 0.25]$,
$T = [8.5, 7, 6.5, 5]$ Н.

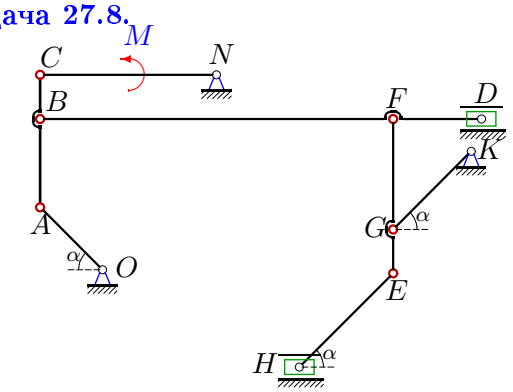
Задача 27.7.



Журавлева Анастасия

$\alpha = 30°$,
$AB = 10$, $BC = 30$,
$NB = 60$, $NF = 30$,
$CD = 60$, $EH = 30$,
$FE = 35$, $FG = 20$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.4, 0.2]$,
$T = [8, 7, 6.5, 5]$ Н.

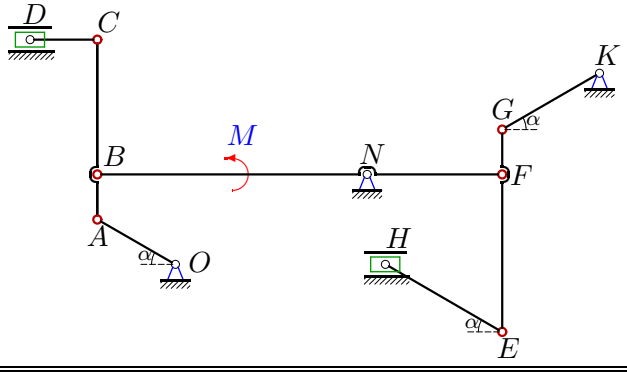
Задача 27.8.



Зубрильчев Даниил

$\alpha = 45°$,
$AB = 20$, $BC = 10$,
$BF = 80$, $FD = 20$,
$NC = 40$, $EH = 30$,
$FE = 35$, $FG = 25$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.4, 0.2]$,
$T = [8, 7, 6, 5.5]$ Н.

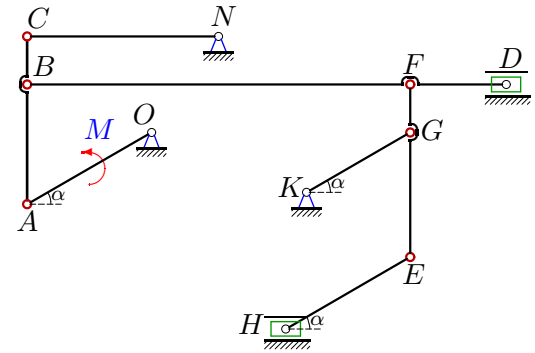
Задача 27.9.



Изотов Роман Игоревич

$\alpha = 30°$,
$AB = 10$, $BC = 30$,
$NB = 60$, $NF = 30$,
$CD = 15$, $EH = 30$,
$FE = 35$, $FG = 10$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.35, 0.25]$,
$T = [8.5, 7.5, 6.5, 5.5]$ Н.

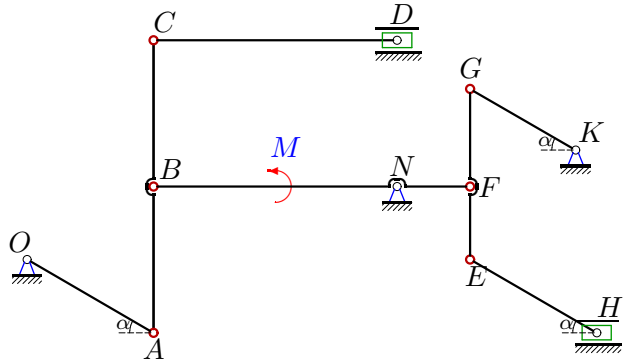
Задача 27.10.



Луканин Александр Сергеевич

$\alpha = 30°$,
$AB = 25$, $BC = 10$,
$BF = 80$, $FD = 20$,
$NC = 40$, $EH = 30$,
$FE = 36$, $FG = 10$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.4, 0.2]$,
$T = [8, 7, 6.5, 5.5]$ Н.

Задача 27.11.

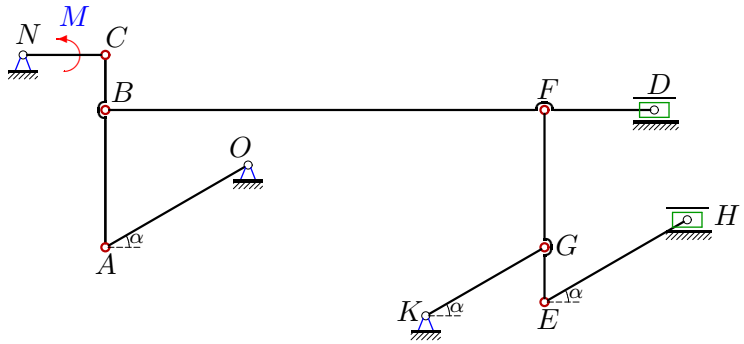


Семенов Дмитрий Сергеевич

$\alpha = 30°$,
$AB = 30$, $BC = 30$,
$NB = 50$, $NF = 15$,
$CD = 50$, $EH = 30$,
$FE = 15$, $FG = 20$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.4, 0.2]$,
$T = [8, 7, 6.5, 5.5]$ Н.

Задача 27.12.

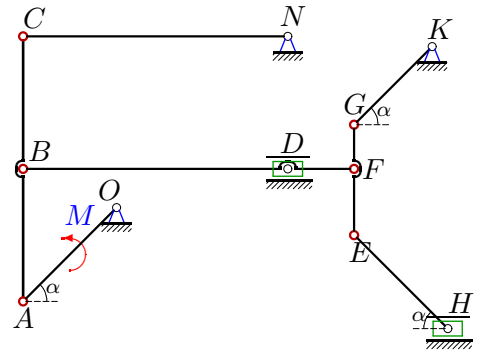
Степанова Светлана



$\alpha = 30°$,
$AB = 25$, $BC = 10$,
$BF = 80$, $FD = 20$,
$NC = 15$, $EH = 30$,
$FE = 35$, $FG = 25$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.4, 0.2]$,
$T = [8, 7, 6.5, 5]$ Н.

Задача 27.13.

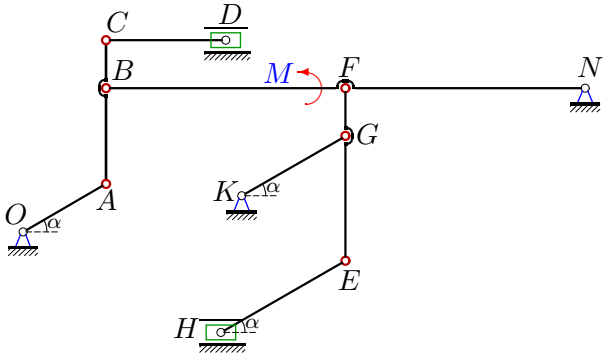
Уткин Артем Евгеньевич



$\alpha = 45°$,
$AB = 30$, $BC = 30$,
$DB = 60$, $DF = 15$,
$NC = 60$, $EH = 30$,
$FE = 15$, $FG = 10$,
$OA = 30$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.05, 0.35, 0.35, 0.25]$,
$T = [8.5, 7, 6.5, 5.5]$ Н.

Задача 27.14.

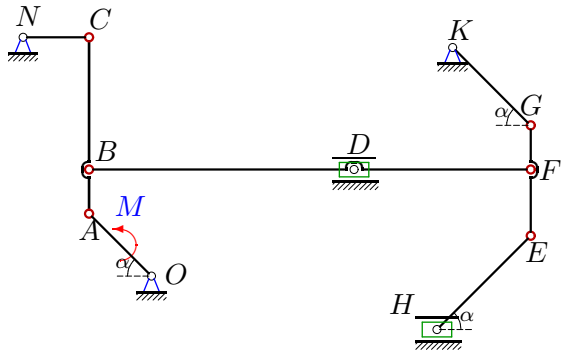
Храпов Иван Николаевич



$\alpha = 30°$,
$AB = 20$, $BC = 10$,
$BF = 50$, $NF = 50$,
$CD = 25$, $EH = 30$,
$FG = 10$, $GE = 26$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.4, 0.2]$,
$T = [8, 7.5, 6.5, 5.5]$ Н.

Задача 27.15.

Чернышев Егор Вадимович



$\alpha = 45°$,
$AB = 10$, $BC = 30$,
$DB = 60$, $DF = 40$,
$NC = 15$, $EH = 30$,
$FE = 15$, $FG = 10$,
$OA = 20$, $KG = 25$.
a_A, a_B, a_C– ?
$p = [0.1, 0.3, 0.35, 0.25]$,
$T = [8.5, 7.5, 6.5, 5.5]$ Н.