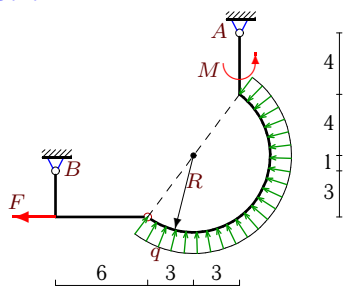


## Составная рама с нагрузкой, распределенной по дуге

На раму, составленную из двух шарнирно соединенных частей, действует нагрузка с интенсивностью  $q$ , равномерно распределенная по дуге окружности радиуса  $R$ , сила  $F$  и момент  $M$ . Определить реакции опор (в кН). Размеры даны в метрах.

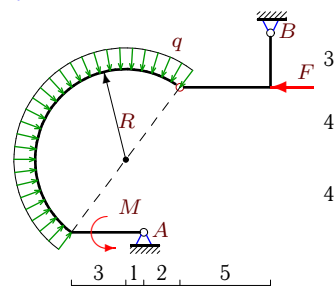
Кирсанов М.Н. Задачи по теоретической механике с решениями в **Maple 11**. – М.: ФИЗМАТЛИТ, 2010. – 264 с. (с.15)

**Задача S35.1.**



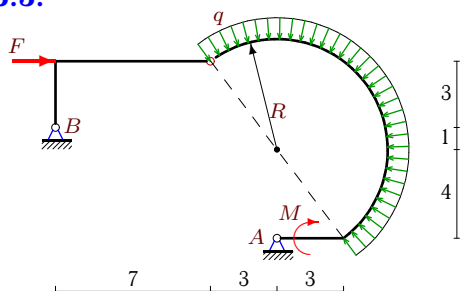
$q = 1 \text{ кН/м}$ ,  $F = 45 \text{ кН}$ ,  $M = 82 \text{ кНм}$ .

**Задача S35.2.**



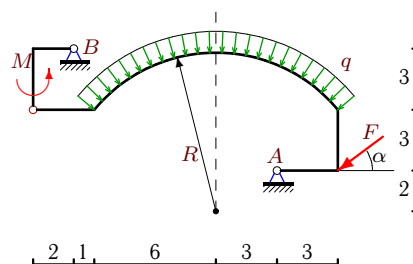
$q = 1 \text{ кН/м}$ ,  $F = 17 \text{ кН}$ ,  $M = 26 \text{ кНм}$ .

**Задача S35.3.**



$q = 5 \text{ кН/м}$ ,  $F = 65 \text{ кН}$ ,  $M = 160 \text{ кНм}$ .

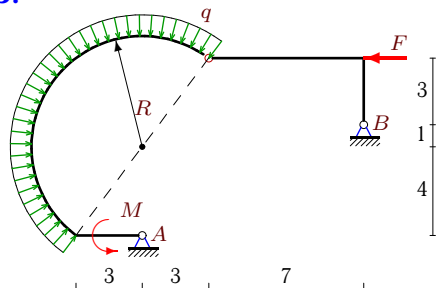
**Задача S35.4.**



$\cos \alpha = 0.8$

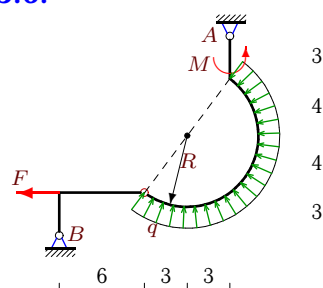
$q = 4 \text{ кН/м}$ ,  $F = 70 \text{ кН}$ ,  $M = 144 \text{ кНм}$ .

**Задача S35.5.**



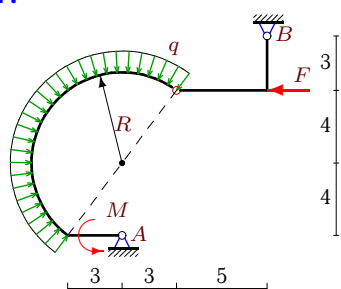
$q = 2 \text{ кН/м}$ ,  $F = 65 \text{ кН}$ ,  $M = 64 \text{ кНм}$ .

**Задача S35.6.**



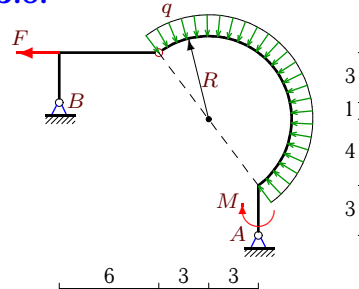
$q = 1 \text{ кН/м}$ ,  $F = 48 \text{ кН}$ ,  $M = 74 \text{ кНм}$ .

**Задача S35.7.**



$q = 1 \text{ кН/м}$ ,  $F = 31 \text{ кН}$ ,  $M = 32 \text{ кНм}$ .

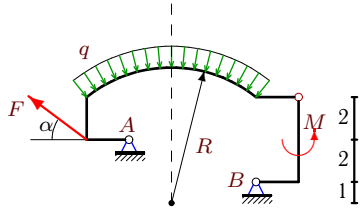
**Задача S35.8.**



$q = 2 \text{ кН/м}$ ,  $F = 84 \text{ кН}$ ,  $M = 148 \text{ кНм}$ .

**Задача S35.9.**

2

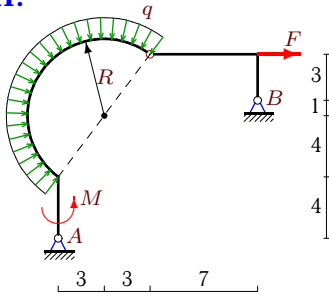


$\cos \alpha = 0.8$

$q = 3 \text{ кН/м}, F = 70 \text{ кН}, M = 96 \text{ кНм}.$

**Задача S35.11.**

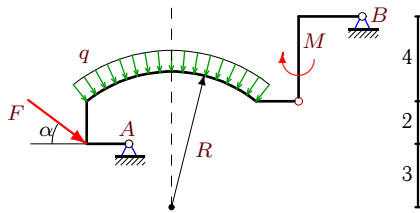
2



$q = 1 \text{ кН/м}, F = 34 \text{ кН}, M = 82 \text{ кНм}.$

**Задача S35.13.**

2

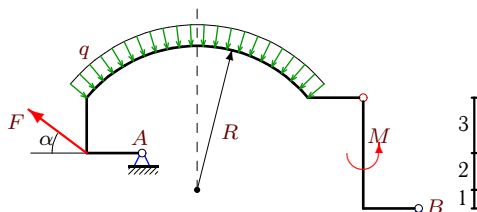


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 65 \text{ кН}, M = 32 \text{ кНм}.$

**Задача S35.15.**

2

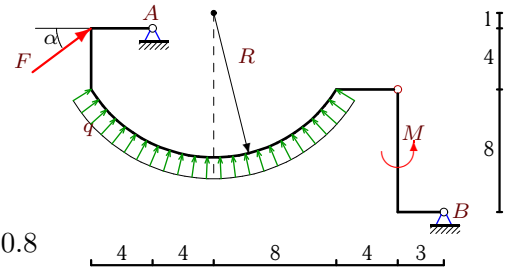


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 135 \text{ кН}, M = 72 \text{ кНм}.$

**Задача S35.10.**

2

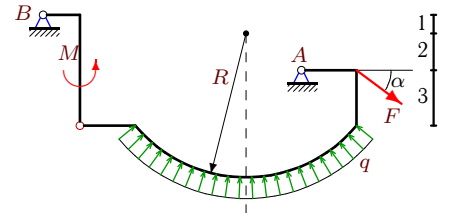


$\cos \alpha = 0.8$

$q = 4 \text{ кН/м}, F = 145 \text{ кН}, M = 512 \text{ кНм}.$

**Задача S35.12.**

2

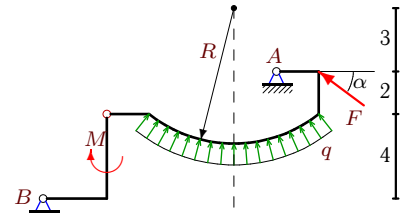


$\cos \alpha = 0.8$

$q = 3 \text{ кН/м}, F = 130 \text{ кН}, M = 216 \text{ кНм}.$

**Задача S35.14.**

2

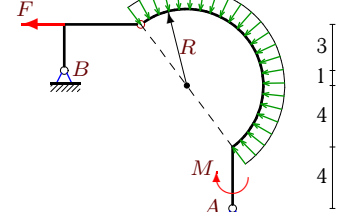


$\cos \alpha = 0.8$

$q = 2 \text{ кН/м}, F = 65 \text{ кН}, M = 64 \text{ кНм}.$

**Задача S35.16.**

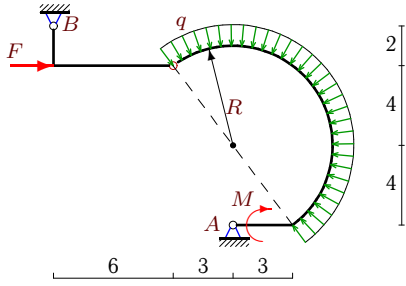
2



$q = 2 \text{ кН/м}, F = 39 \text{ кН}, M = 164 \text{ кНм}.$

**Задача S35.17.**

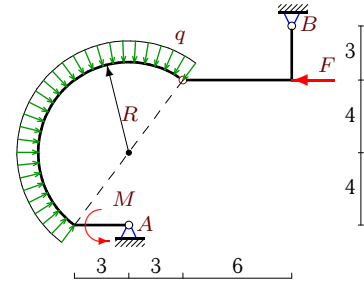
2



$q = 2 \text{ кН/м}, F = 21 \text{ кН}, M = 64 \text{ кНм}.$

**Задача S35.18.**

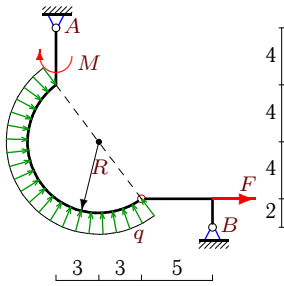
2



$q = 5 \text{ кН/м}, F = 39 \text{ кН}, M = 160 \text{ кНм}.$

**Задача S35.19.**

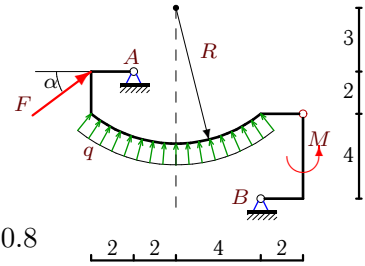
2



$q = 1 \text{ кН/м}, F = 12 \text{ кН}, M = 82 \text{ кНм}.$

**Задача S35.20.**

2

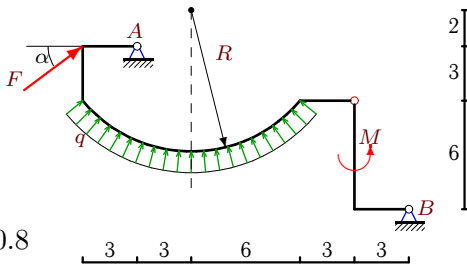


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 90 \text{ кН}, M = 32 \text{ кНм}.$

**Задача S35.21.**

2

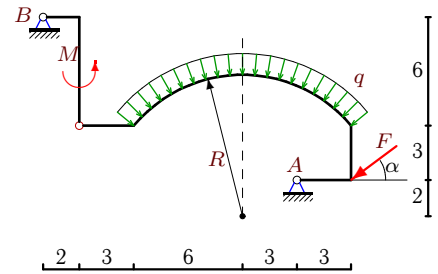


$\cos \alpha = 0.8$

$q = 2 \text{ кН/м}, F = 105 \text{ кН}, M = 144 \text{ кНм}.$

**Задача S35.22.**

2

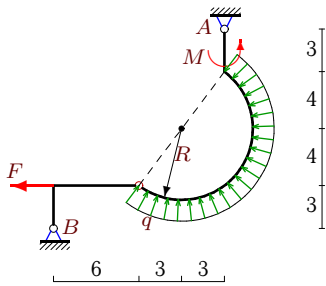


$\cos \alpha = 0.8$

$q = 3 \text{ кН/м}, F = 110 \text{ кН}, M = 216 \text{ кНм}.$

**Задача S35.23.**

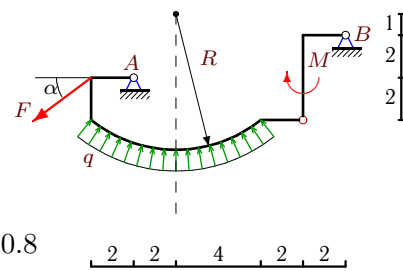
2



$q = 4 \text{ кН/м}, F = 48 \text{ кН}, M = 296 \text{ кНм}.$

**Задача S35.24.**

2

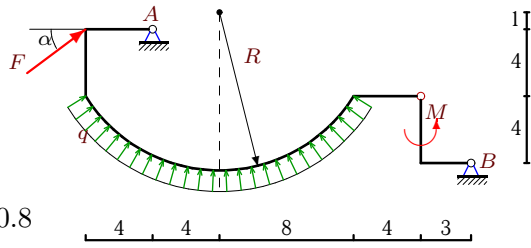


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 30 \text{ кН}, M = 32 \text{ кНм}.$

**Задача S35.25.**

2

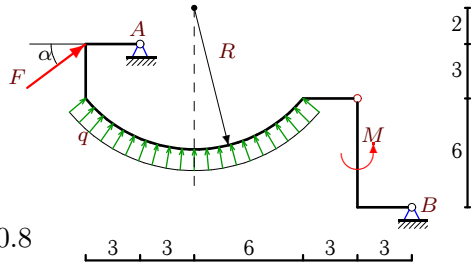


$\cos \alpha = 0.8$

$q = 3 \text{ кН/м}, F = 65 \text{ кН}, M = 192 \text{ кНм.}$

**Задача S35.27.**

2

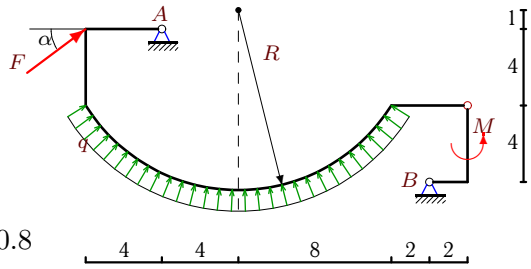


$\cos \alpha = 0.8$

$q = 2 \text{ кН/м}, F = 105 \text{ кН}, M = 144 \text{ кНм.}$

**Задача S35.29.**

2

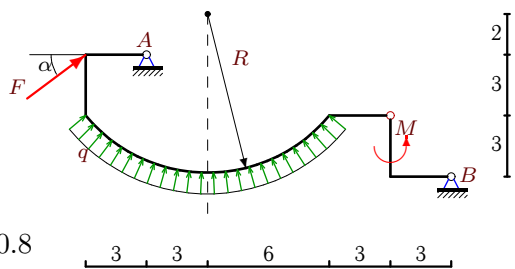


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 45 \text{ кН}, M = 64 \text{ кНм.}$

**Задача S35.31.**

2

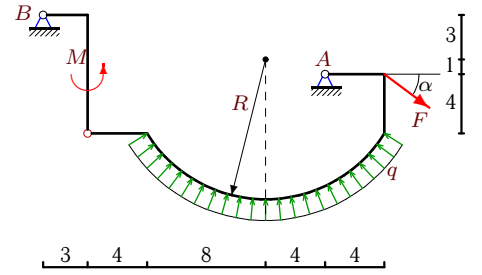


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 45 \text{ кН}, M = 36 \text{ кНм.}$

**Задача S35.26.**

2

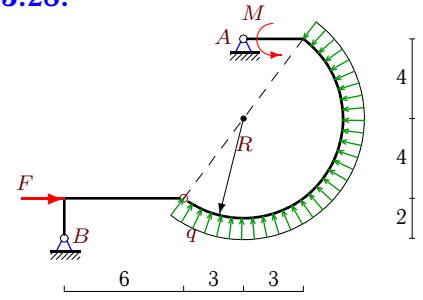


$\cos \alpha = 0.8$

$q = 3 \text{ кН/м}, F = 175 \text{ кН}, M = 384 \text{ кНм.}$

**Задача S35.28.**

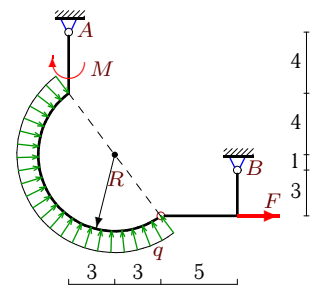
2



$q = 1 \text{ кН/м}, F = 42 \text{ кН}, M = 32 \text{ кНм.}$

**Задача S35.30.**

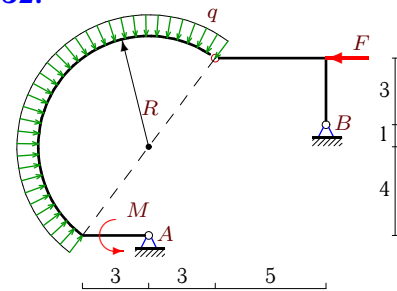
2



$q = 1 \text{ кН/м}, F = 39 \text{ кН}, M = 82 \text{ кНм.}$

**Задача S35.32.**

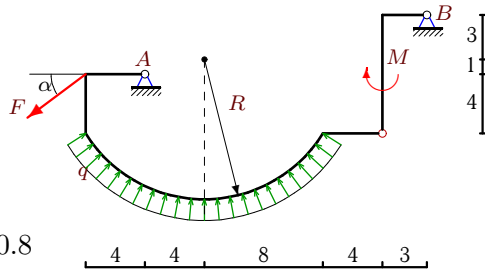
2



$q = 1 \text{ кН/м}, F = 49 \text{ кН}, M = 32 \text{ кНм.}$

**Задача S35.33.**

2

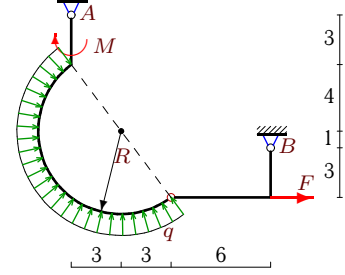


$\cos \alpha = 0.8$

$q = 2 \text{ кН/м}, F = 175 \text{ кН}, M = 256 \text{ кНм}.$

**Задача S35.34.**

2



$q = 1 \text{ кН/м}, F = 28 \text{ кН}, M = 74 \text{ кНм}.$

**S35 Ответы.**

**Составная рама с нагрузкой, распределенной по дуге 03.09.2011**

№	$X_A$	$Y_A$	$X_B$	$Y_B$
1	17	12	36	-18
2	-11	-6	20	12
3	31	54	-56	-24
4	14	99	42	-9
5	-7	36	56	-24
6	-10	-39	66	33
7	-17	-18	40	24
8	34	-21	66	33
9	74	-30	-18	12
10	-43	-175	-73	24
11	-14	-6	-28	12
12	-146	60	42	-18
13	-35	59	-17	-12
14	27	-67	25	12
15	129	-87	-21	18
16	25	-6	30	18
17	19	4	-24	8
18	-49	6	48	24
19	-5	-12	-15	6
20	-70	-74	-2	12
21	-51	-105	-33	18
22	46	120	42	-18
23	14	-57	66	33
24	34	14	-10	-4
25	5	-99	-57	12
26	-197	81	57	-24
27	-51	-105	-33	18
28	14	10	-48	-16
29	-23	-49	-13	6
30	-17	12	-30	-18
31	-15	-48	-21	9
32	1	30	40	-24
33	181	97	-41	-24
34	-14	5	-22	-11