

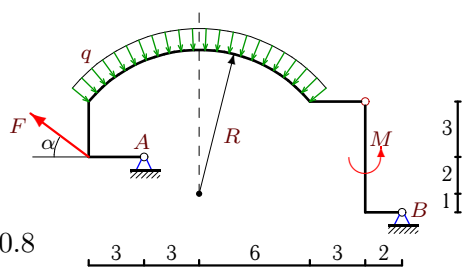
## Составная рама с нагрузкой, распределенной по дуге

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.**

3

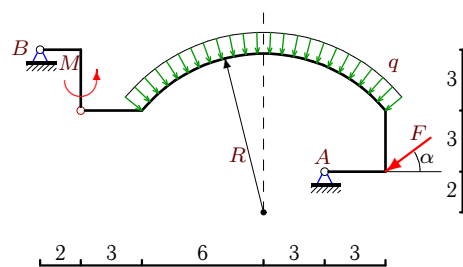


$$\cos \alpha = 0.8$$

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

**Задача S35.2.**

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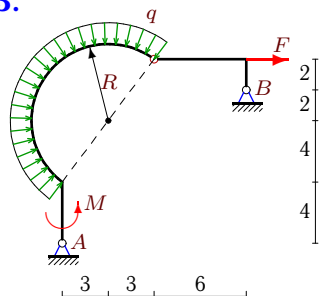


$$\cos \alpha = 0.8$$

$$q = 2 \text{ кН/м}, F = 50 \text{ кН}, M = 72 \text{ кНм.}$$

**Задача S35.3.**

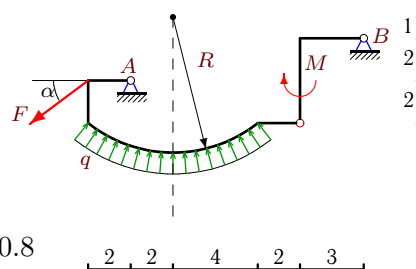
3



$$q = 1 \text{ кН/м}, F = 21 \text{ кН}, M = 82 \text{ кНм.}$$

**Задача S35.4.**

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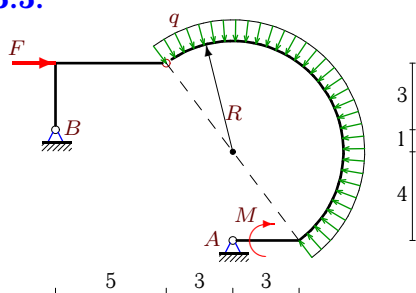


$$\cos \alpha = 0.8$$

$$q = 2 \text{ кН/м}, F = 95 \text{ кН}, M = 64 \text{ кНм.}$$

**Задача S35.5.**

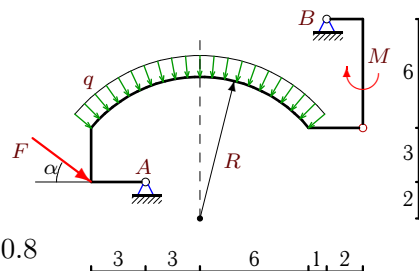
3



$$q = 4 \text{ кН/м}, F = 49 \text{ кН}, M = 128 \text{ кНм.}$$

**Задача S35.6.**

3

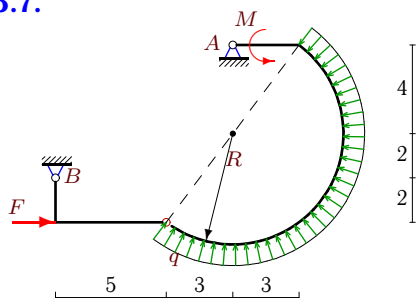


$$\cos \alpha = 0.8$$

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

**Задача S35.7.**

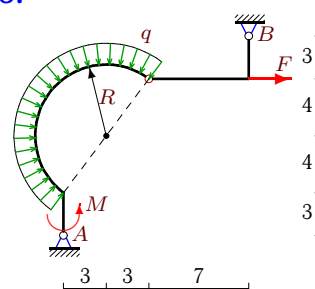
3



$$q = 1 \text{ кН/м}, F = 23 \text{ кН}, M = 32 \text{ кНм.}$$

**Задача S35.8.**

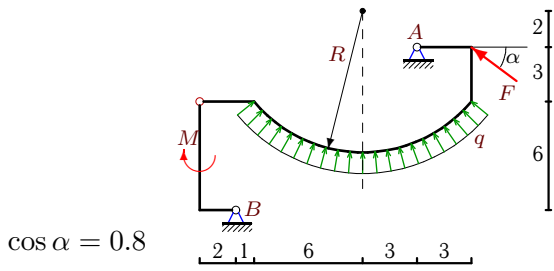
3



$$q = 2 \text{ кН/м}, F = 59 \text{ кН}, M = 148 \text{ кНм.}$$

**Задача S35.9.**

3

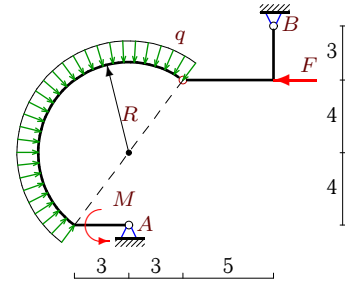


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 65 \text{ кН}, M = 72 \text{ кНм}.$

**Задача S35.10.**

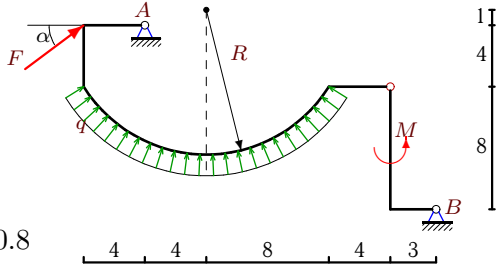
3



$q = 4 \text{ кН/м}, F = 31 \text{ кН}, M = 128 \text{ кНм}.$

**Задача S35.11.**

3

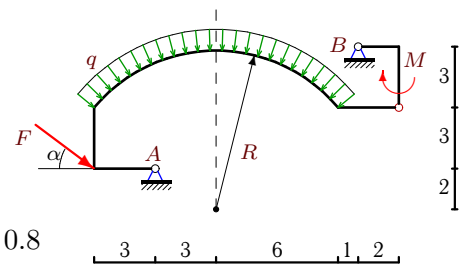


$\cos \alpha = 0.8$

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

**Задача S35.12.**

3

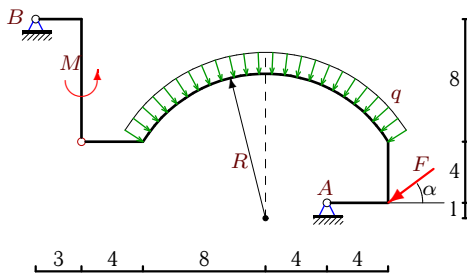


$\cos \alpha = 0.8$

$q = 2 \text{ кН/м}, F = 70 \text{ кН}, M = 72 \text{ кНм}.$

**Задача S35.13.**

3

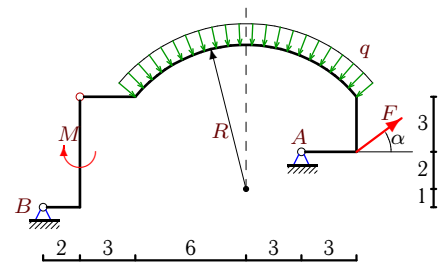


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 145 \text{ кН}, M = 128 \text{ кНм}.$

**Задача S35.14.**

3

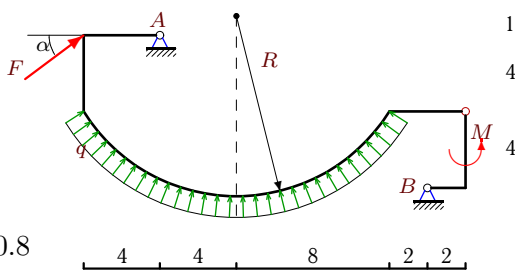


$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 65 \text{ кН}, M = 72 \text{ кНм}.$

**Задача S35.15.**

3

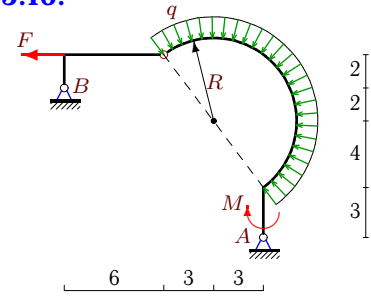


$\cos \alpha = 0.8$

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

**Задача S35.16.**

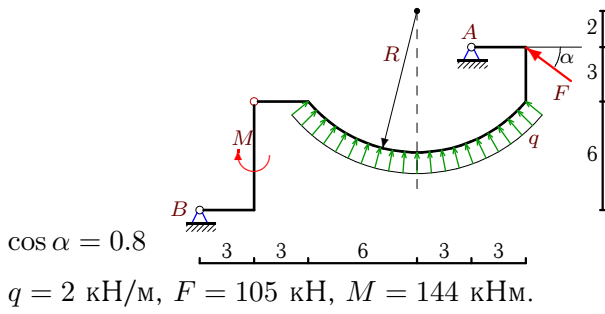
3



$q = 3 \text{ кН/м}, F = 78 \text{ кН}, M = 222 \text{ кНм}.$

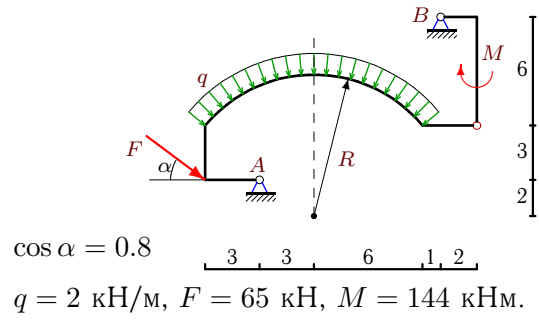
**Задача S35.17.**

3



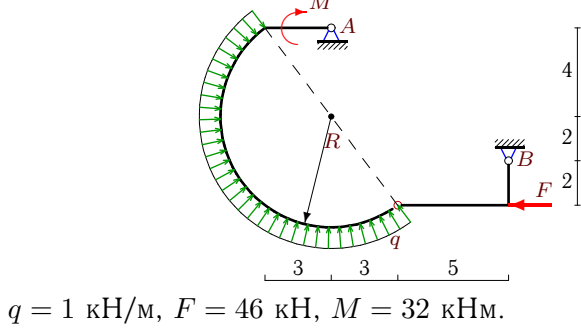
**Задача S35.18.**

3



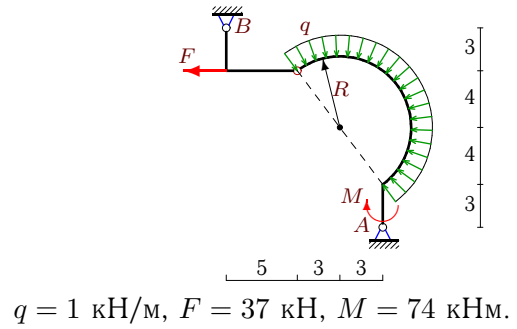
**Задача S35.19.**

3



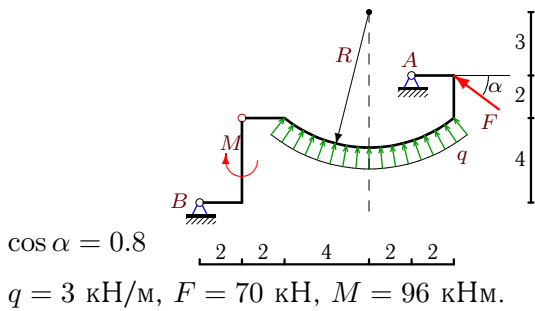
**Задача S35.20.**

3



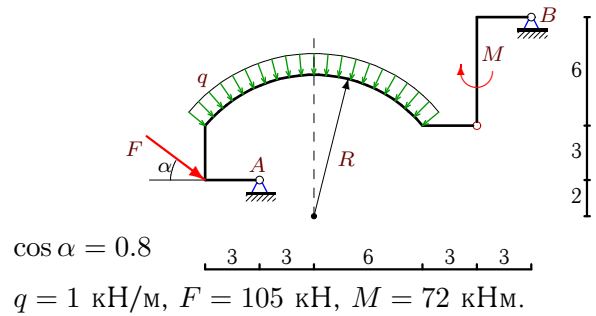
**Задача S35.21.**

3



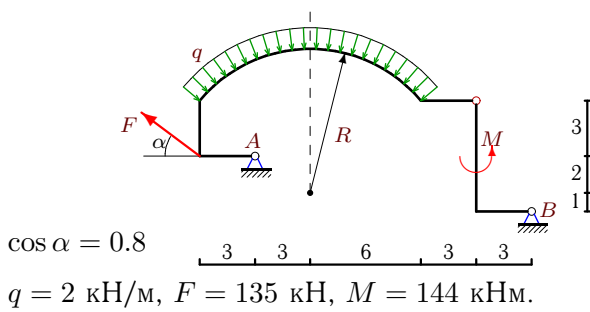
**Задача S35.22.**

3



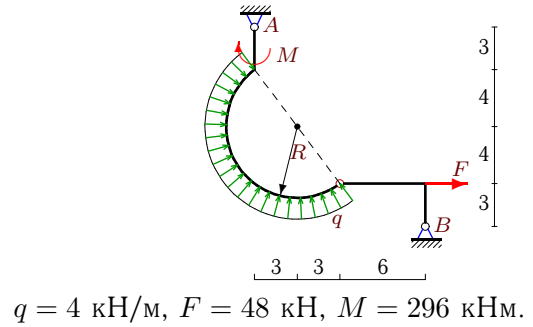
**Задача S35.23.**

3



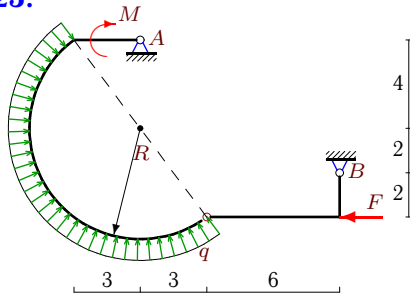
**Задача S35.24.**

3



**Задача S35.25.**

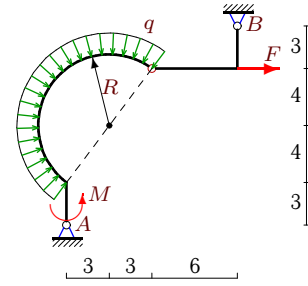
3



$q = 1 \text{ кН/м}, F = 54 \text{ кН}, M = 32 \text{ кНм}.$

**Задача S35.26.**

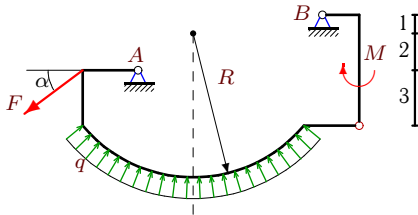
3



$q = 2 \text{ кН/м}, F = 48 \text{ кН}, M = 148 \text{ кНм}.$

**Задача S35.27.**

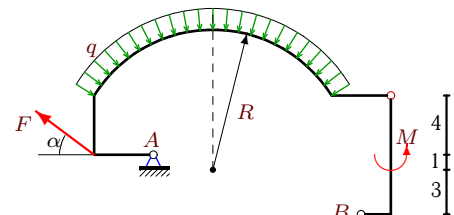
3



$\cos \alpha = 0.8$   
 $q = 3 \text{ кН/м}, F = 110 \text{ кН}, M = 216 \text{ кНм}.$

**Задача S35.28.**

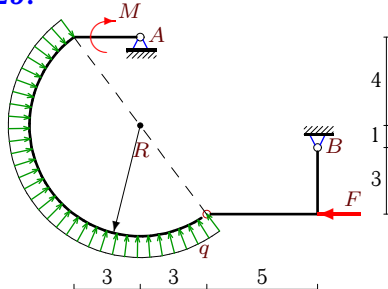
3



$\cos \alpha = 0.8$   
 $q = 1 \text{ кН/м}, F = 50 \text{ кН}, M = 128 \text{ кНм}.$

**Задача S35.29.**

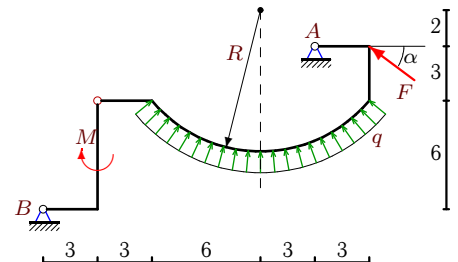
3



$q = 5 \text{ кН/м}, F = 49 \text{ кН}, M = 160 \text{ кНм}.$

**Задача S35.30.**

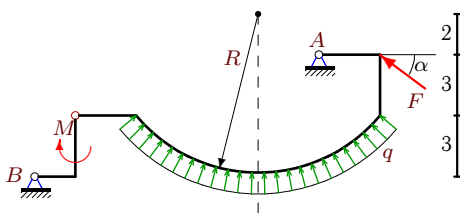
3



$\cos \alpha = 0.8$   
 $q = 4 \text{ кН/м}, F = 105 \text{ кН}, M = 288 \text{ кНм}.$

**Задача S35.31.**

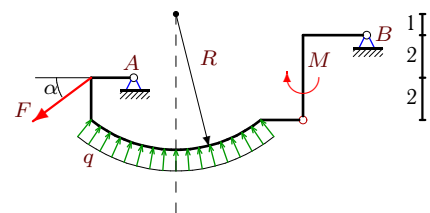
3



$\cos \alpha = 0.8$   
 $q = 3 \text{ кН/м}, F = 50 \text{ кН}, M = 108 \text{ кНм}.$

**Задача S35.32.**

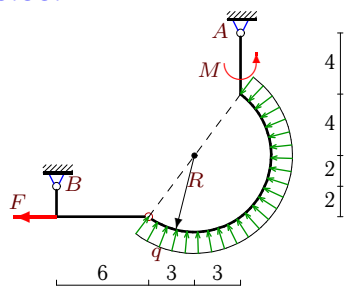
3



$\cos \alpha = 0.8$   
 $q = 3 \text{ кН/м}, F = 95 \text{ кН}, M = 96 \text{ кНм}.$

**Задача S35.33.**

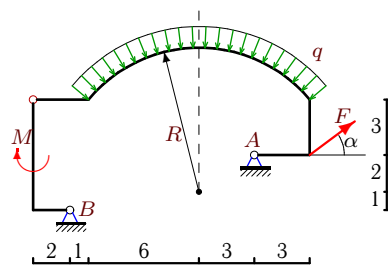
3



$q = 1 \text{ кН/м}, F = 84 \text{ кН}, M = 82 \text{ кНм}.$

**Задача S35.34.**

3



$\cos \alpha = 0.8$

$q = 1 \text{ кН/м}, F = 55 \text{ кН}, M = 72 \text{ кНм}.$

**S35 Ответы.**

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

№	$X_A$	$Y_A$	$X_B$	$Y_B$
1	146	-60	-42	18
2	10	63	30	-9
3	-11	0	-18	6
4	101	53	-25	-12
5	23	48	-40	-24
6	-74	132	-30	-18
7	5	-14	-20	8
8	2	45	-77	-33
9	43	-60	9	9
10	-41	0	40	24
11	-43	-175	-73	24
12	-38	75	-18	-9
13	91	127	25	-24
14	-67	-36	15	9
15	-23	-49	-13	6
16	36	-4	66	22
17	51	-105	33	18
18	-31	72	-21	-9
19	-2	-22	40	16
20	-10	39	55	-33
21	26	-78	30	12
22	-63	93	-21	-18
23	141	-75	-33	18
24	-14	-57	-66	33
25	-2	-22	48	16
26	2	45	-66	-33
27	118	48	-30	-18
28	54	-22	-14	8
29	-31	-54	40	24
30	27	-129	57	18
31	-2	-75	42	9
32	109	45	-33	-12
33	20	18	72	-24
34	-53	-30	9	9