

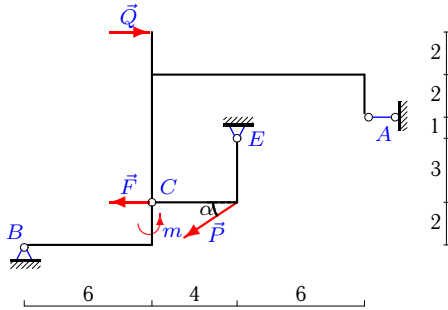
## Составная конструкция 3 тел

Определить реакции опор конструкции (в кН), состоящей из трех тел, соединенных в точке  $C$  шарниром. Размеры указаны в метрах.

Кирсанов М.Н. **Решебник. Теоретическая механика**/Под ред. А. И. Кириллова.– М.:ФИЗМАТЛИТ, 2008.– 384 с. (с.67.)

**Задача 16.1.**

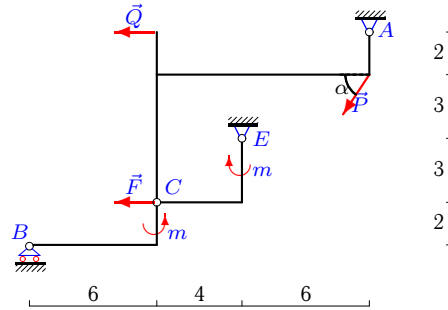
6



$P = 7$  кН,  $Q = 3$  кН,  $F = 1$  кН,  
 $m = 3$  кНм,  $\alpha = 30^\circ$ .

**Задача 16.2.**

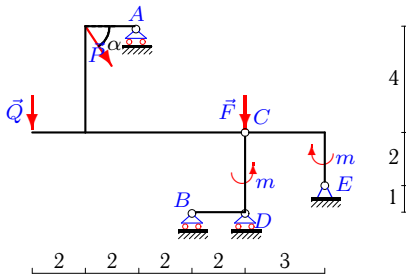
6



$P = 1$  кН,  $Q = 2$  кН,  $F = 2$  кН,  
 $m = 3$  кНм,  $\alpha = 60^\circ$ .

**Задача 16.3.**

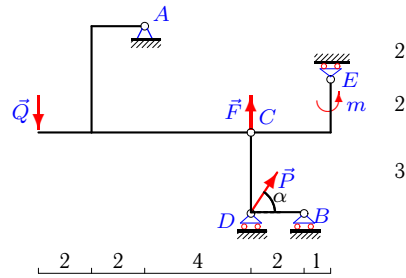
6



$P = 2$  кН,  $Q = 5$  кН,  $F = 4$  кН,  
 $m = 5$  кНм,  $\alpha = 60^\circ$ .

**Задача 16.4.**

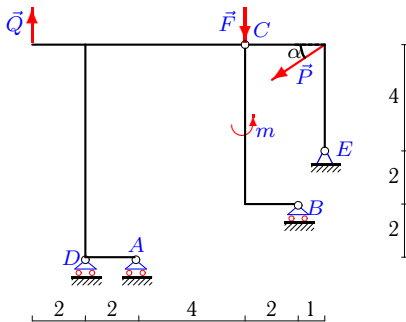
6



$P = 1$  кН,  $Q = 3$  кН,  $F = 9$  кН,  
 $m = 4$  кНм,  $\alpha = 60^\circ$ .

**Задача 16.5.**

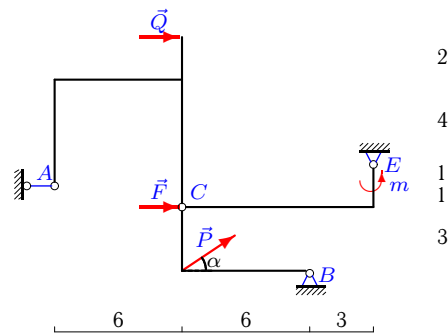
6



$P = 2$  кН,  $Q = 3$  кН,  $F = 6$  кН,  
 $m = 6$  кНм,  $\alpha = 30^\circ$ .

**Задача 16.6.**

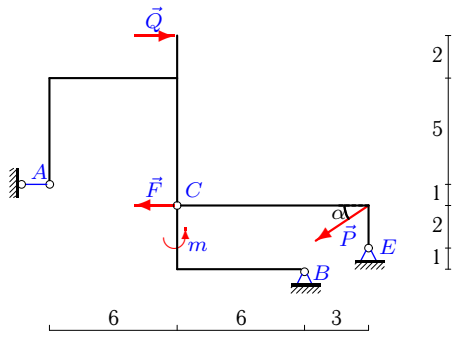
6



$P = 6$  кН,  $Q = 5$  кН,  $F = 1$  кН,  
 $m = 4$  кНм,  $\alpha = 30^\circ$ .

**Задача 16.7.**

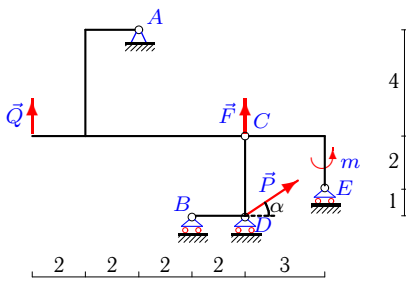
6



$P = 1 \text{ кН}, Q = 2 \text{ кН}, F = 1 \text{ кН},$   
 $m = 6 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.9.**

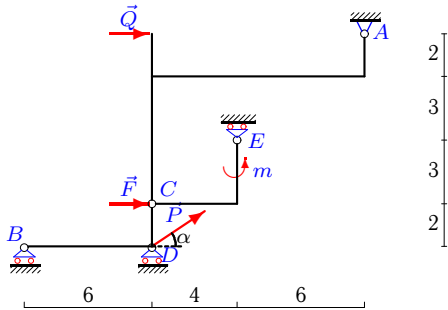
6



$P = 3 \text{ кН}, Q = 5 \text{ кН}, F = 9 \text{ кН},$   
 $m = 5 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.11.**

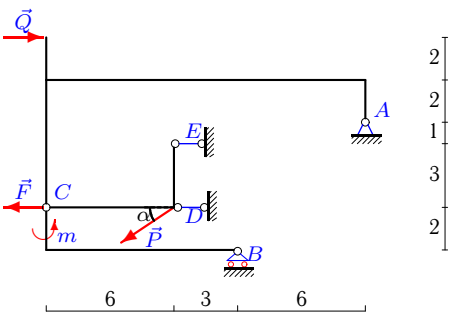
6



$P = 4 \text{ кН}, Q = 6 \text{ кН}, F = 9 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.13.**

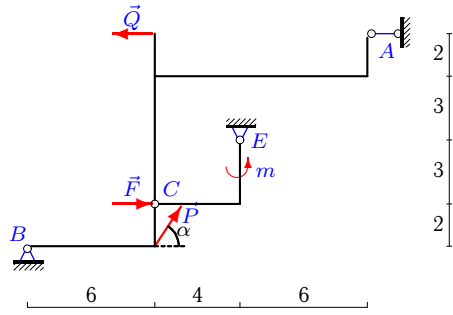
6



$P = 7 \text{ кН}, Q = 6 \text{ кН}, F = 7 \text{ кН},$   
 $m = 4 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.8.**

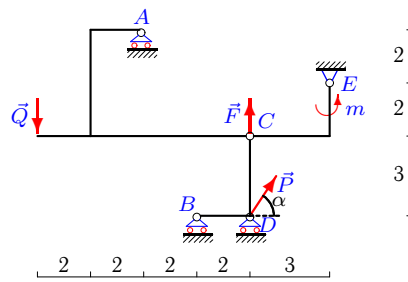
6



$P = 6 \text{ кН}, Q = 6 \text{ кН}, F = 1 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.10.**

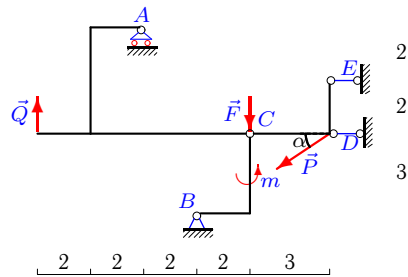
6



$P = 3 \text{ кН}, Q = 5 \text{ кН}, F = 4 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.12.**

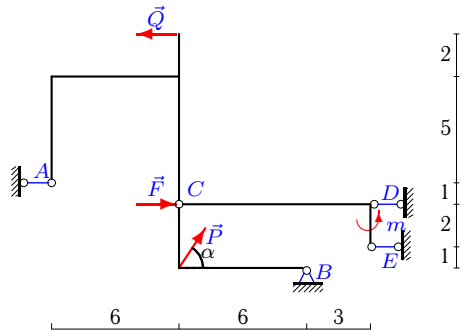
6



$P = 9 \text{ кН}, Q = 5 \text{ кН}, F = 5 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.14.**

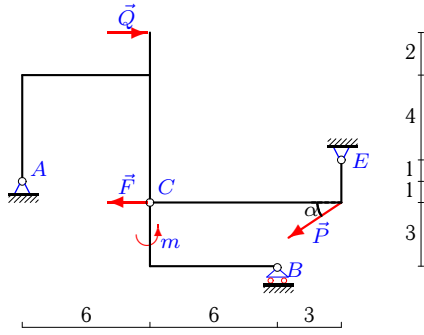
6



$P = 7 \text{ кН}, Q = 6 \text{ кН}, F = 5 \text{ кН},$   
 $m = 6 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.15.**

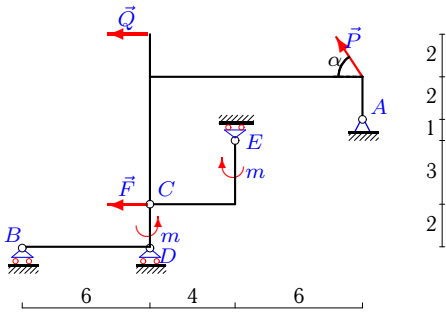
6



$P = 4 \text{ кН}, Q = 6 \text{ кН}, F = 2 \text{ кН},$   
 $m = 4 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.17.**

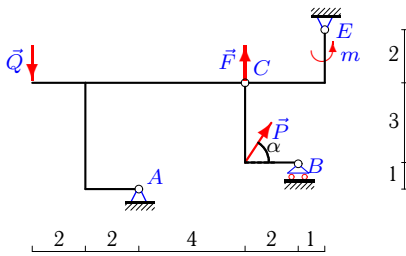
6



$P = 2 \text{ кН}, Q = 5 \text{ кН}, F = 9 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.19.**

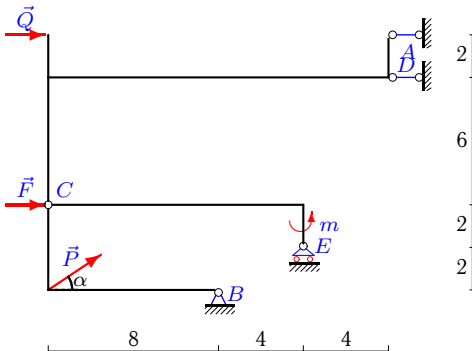
6



$P = 8 \text{ кН}, Q = 6 \text{ кН}, F = 2 \text{ кН},$   
 $m = 4 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.21.**

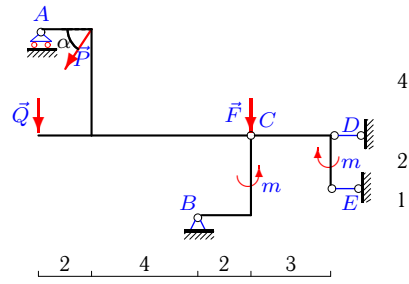
6



$P = 8 \text{ кН}, Q = 6 \text{ кН}, F = 8 \text{ кН},$   
 $m = 6 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.16.**

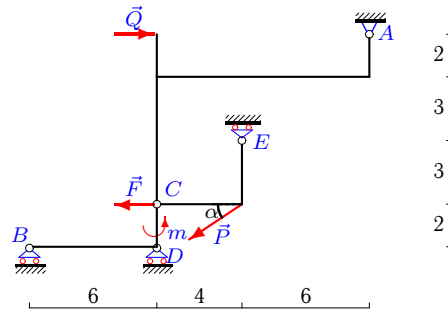
6



$P = 5 \text{ кН}, Q = 2 \text{ кН}, F = 5 \text{ кН},$   
 $m = 5 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.18.**

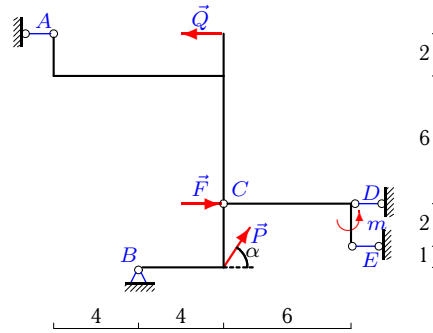
6



$P = 6 \text{ кН}, Q = 6 \text{ кН}, F = 9 \text{ кН},$   
 $m = 3 \text{ кНм}, \alpha = 30^\circ.$

**Задача 16.20.**

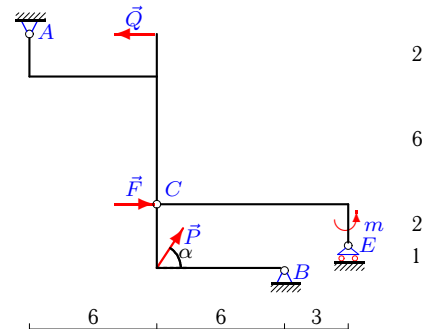
6



$P = 4 \text{ кН}, Q = 3 \text{ кН}, F = 5 \text{ кН},$   
 $m = 5 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.22.**

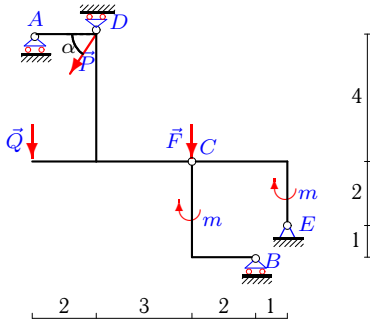
6



$P = 6 \text{ кН}, Q = 9 \text{ кН}, F = 3 \text{ кН},$   
 $m = 6 \text{ кНм}, \alpha = 60^\circ.$

**Задача 16.23.**

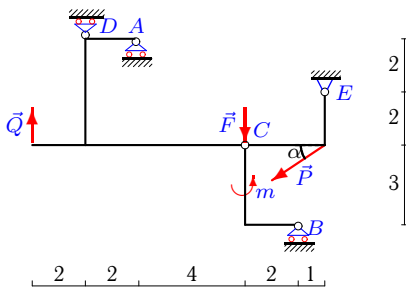
6



$P = 4 \text{ кН}$ ,  $Q = 8 \text{ кН}$ ,  $F = 6 \text{ кН}$ ,  
 $m = 6 \text{ кНм}$ ,  $\alpha = 60^\circ$ .

**Задача 16.25.**

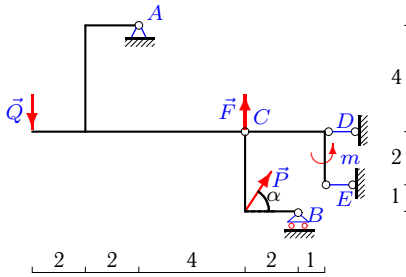
6



$P = 2 \text{ кН}$ ,  $Q = 2 \text{ кН}$ ,  $F = 6 \text{ кН}$ ,  
 $m = 4 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Задача 16.27.**

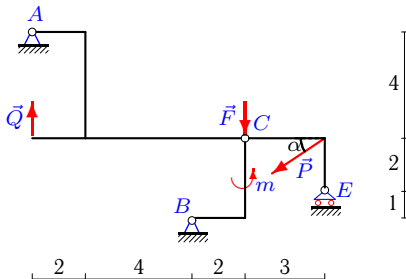
6



$P = 6 \text{ кН}$ ,  $Q = 7 \text{ кН}$ ,  $F = 7 \text{ кН}$ ,  
 $m = 6 \text{ кНм}$ ,  $\alpha = 60^\circ$ .

**Задача 16.29.**

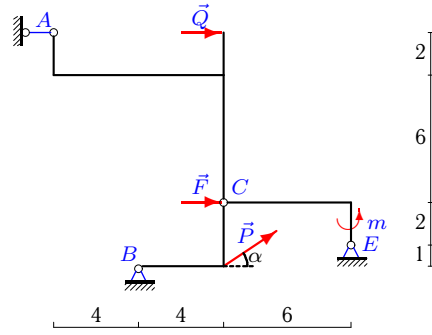
6



$P = 5 \text{ кН}$ ,  $Q = 2 \text{ кН}$ ,  $F = 3 \text{ кН}$ ,  
 $m = 5 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Задача 16.24.**

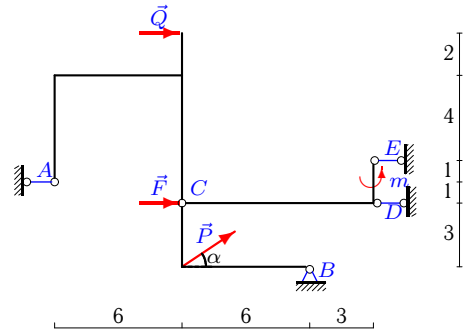
6



$P = 3 \text{ кН}$ ,  $Q = 8 \text{ кН}$ ,  $F = 1 \text{ кН}$ ,  
 $m = 5 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Задача 16.26.**

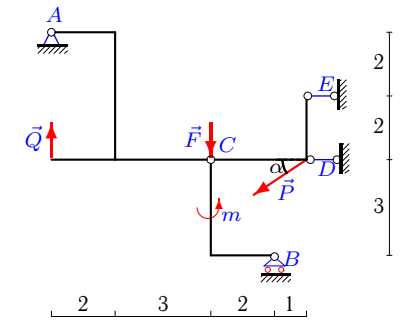
6



$P = 2 \text{ кН}$ ,  $Q = 3 \text{ кН}$ ,  $F = 5 \text{ кН}$ ,  
 $m = 4 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Задача 16.28.**

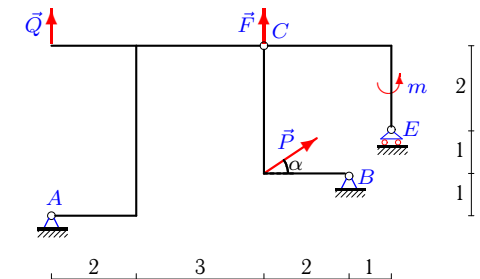
6



$P = 9 \text{ кН}$ ,  $Q = 6 \text{ кН}$ ,  $F = 7 \text{ кН}$ ,  
 $m = 4 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Задача 16.30.**

6



$P = 6 \text{ кН}$ ,  $Q = 3 \text{ кН}$ ,  $F = 3 \text{ кН}$ ,  
 $m = 6 \text{ кНм}$ ,  $\alpha = 30^\circ$ .

**Составная конструкция 3 тел**

№	$X_A$	$Y_A$	$X_B$	$Y_B$	$X_E$	$Y_E$	$X_D$	$Y_D$
1	-6.000	-	19.311	6.937	-9.249	-3.437	-	-
2	-54.500	-44.634	-	0.500	59.000	45.000	-	-
3	-	11.598	-	2.500	-1.000	2.333	-	-5.699
4	-0.500	6.500	-	-0.750	-	-1.333	-	-11.282
5	-	36.928	-	-3.000	1.732	-1.309	-	-28.618
6	-40.000	-	8.803	-7.000	20.000	4.000	-	-
7	-16.000	-	-16.292	7.146	32.158	-6.646	-	-
8	6.000	-	5.870	2.956	-9.870	-8.153	-	-
9	-2.598	-7.401	-	3.897	-	-1.666	-	-10.328
10	-	10.000	-	2.250	-1.500	-2.000	-	-11.848
11	-18.464	-9.971	-	1.154	-	-0.750	-	7.566
12	-	-10.000	8.666	14.500	-6.750	-	5.877	-
13	2.791	3.944	-	-0.444	-7.000	-	11.270	-
14	48.000	-	8.624	-6.062	-3.000	-	-56.124	-
15	-22.591	-4.234	-	-0.666	22.056	6.901	-	-
16	-	6.497	1.555	4.832	2.500	-	-1.555	-
17	15.000	-0.332	-	0.500	-	0.750	-	-2.650
18	8.196	11.356	-	0.500	-	3.000	-	-11.856
19	-14.784	-2.784	-	-6.000	10.784	5.856	-	-
20	3.000	-	-6.618	-3.464	-2.500	-	2.118	-
21	39.000	-	0.071	-3.500	-	-0.500	-60.000	-
22	16.235	-9.647	-13.235	5.117	-	-0.666	-	-
23	-	8.500	-	3.000	2.000	0.666	-	5.297
24	-8.000	-	-3.521	-0.692	-0.076	-0.807	-	-
25	-	22.535	-	-2.000	1.732	2.154	-	-17.690
26	-24.000	-	0.267	-1.000	2.000	-	12.000	-
27	14.696	-0.696	-	-4.500	-3.000	-	-14.696	-
28	-16.875	7.500	-	-2.000	-6.750	-	31.419	-
29	2.997	-3.498	1.332	4.498	-	2.500	-	-
30	-1.739	-4.391	-3.457	-2.608	-	-2.000	-	-