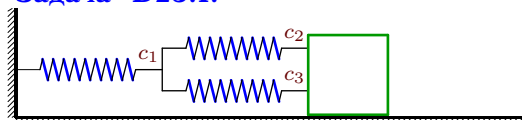


## Свободное колебание точки

Груз массой  $m$  расположен на гладкой горизонтальной плоскости и скреплен с тремя пружинами, жесткости которых заданы. Определить частоту собственных колебаний груза. Массой пружин пренебречь. В ответах дана приведенная жесткость пружин  $c_0$  и частота  $k$ .

### Задача D23.1.

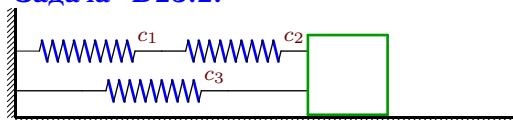
1



$$c_1 = 3 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.2.

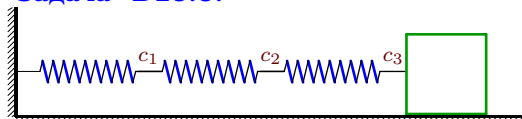
1



$$c_1 = 4 \text{ Н/м}, c_2 = 5 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.3.

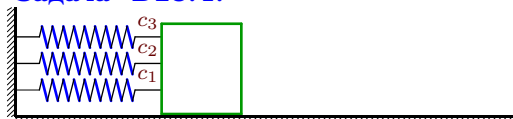
1



$$c_1 = 5 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 1 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.4.

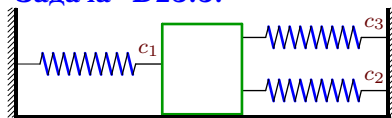
1



$$c_1 = 3 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.5.

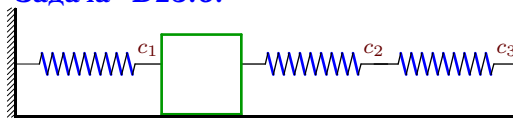
1



$$c_1 = 3 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.6.

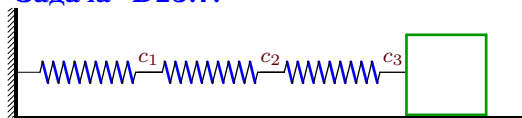
1



$$c_1 = 5 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.7.

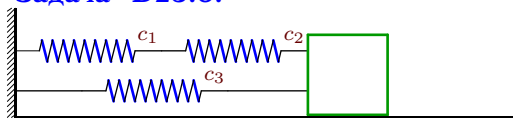
1



$$c_1 = 1 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.8.

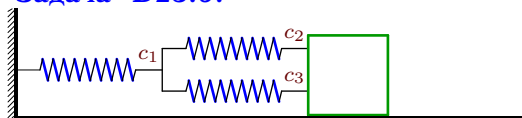
1



$$c_1 = 1 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 1 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.9.

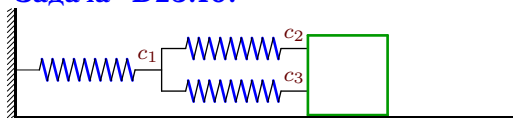
1



$$c_1 = 1 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.10.

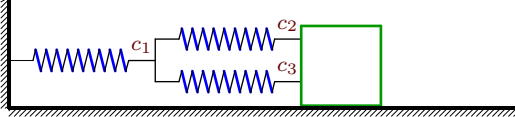
1



$$c_1 = 3 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.11.

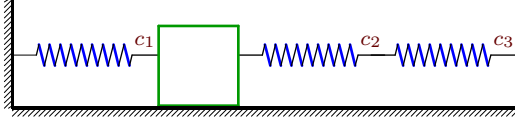
1



$$c_1 = 5 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.12.

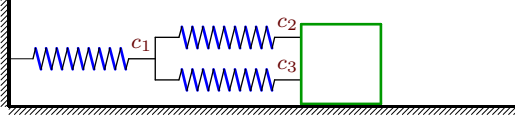
1



$$c_1 = 8 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 5 \text{ кг}.$$

### Задача D23.13.

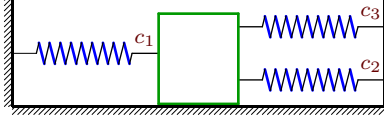
1



$$c_1 = 2 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.14.

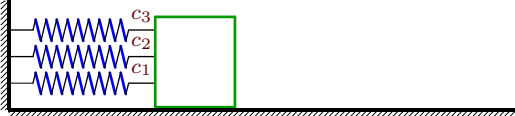
1



$$c_1 = 3 \text{ Н/м}, c_2 = 5 \text{ Н/м}, \\ c_3 = 1 \text{ Н/м}, m = 5 \text{ кг}.$$

### Задача D23.15.

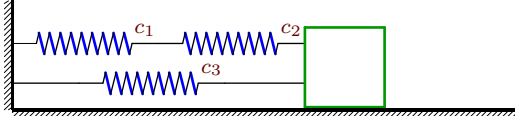
1



$$c_1 = 5 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.16.

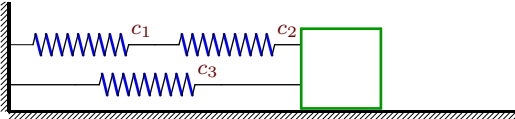
1



$$c_1 = 5 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 5 \text{ кг}.$$

### Задача D23.17.

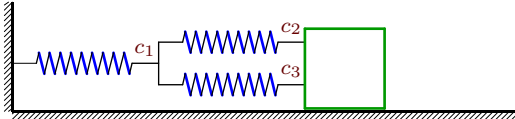
1



$$c_1 = 3 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 1 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.18.

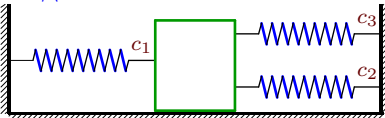
1



$$c_1 = 1 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 3 \text{ Н/м}, m = 5 \text{ кг}.$$

### Задача D23.19.

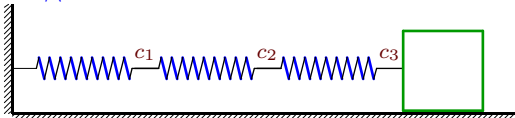
1



$$c_1 = 2 \text{ Н/м}, c_2 = 5 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.20.

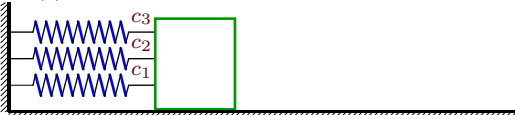
1



$$c_1 = 4 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.21.

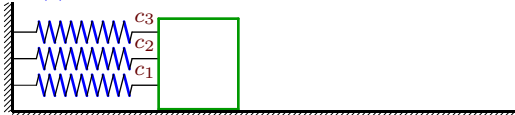
1



$$c_1 = 8 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 5 \text{ кг}.$$

### Задача D23.22.

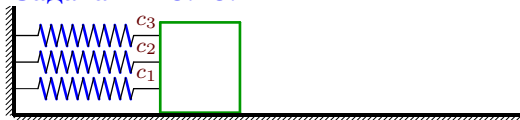
1



$$c_1 = 8 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 3 \text{ кг}.$$

### Задача D23.23.

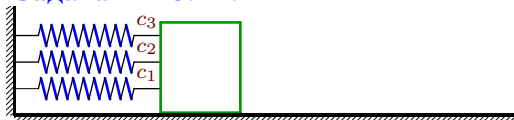
1



$$c_1 = 4 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 1 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.24.

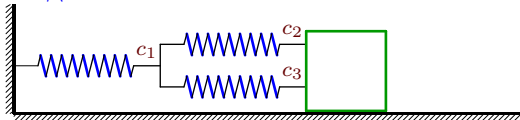
1



$$c_1 = 8 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 3 \text{ кг}.$$

### Задача D23.25.

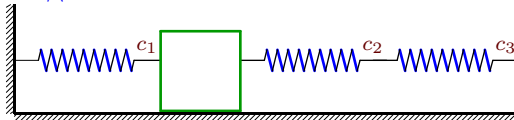
1



$$c_1 = 8 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.26.

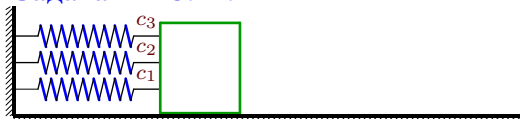
1



$$c_1 = 2 \text{ Н/м}, c_2 = 4 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.27.

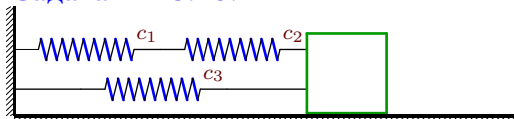
1



$$c_1 = 5 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 4 \text{ кг}.$$

### Задача D23.28.

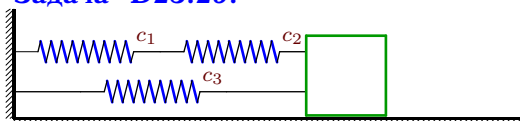
1



$$c_1 = 4 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.29.

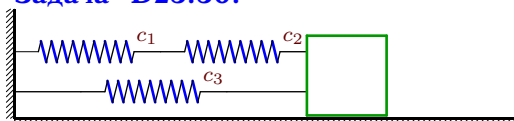
1



$$c_1 = 2 \text{ Н/м}, c_2 = 7 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.30.

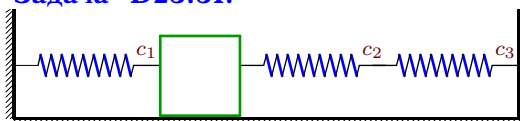
1



$$c_1 = 1 \text{ Н/м}, c_2 = 2 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.31.

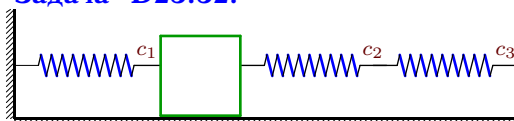
1



$$c_1 = 8 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 5 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.32.

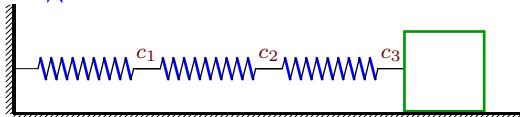
1



$$c_1 = 5 \text{ Н/м}, c_2 = 1 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 1 \text{ кг}.$$

### Задача D23.33.

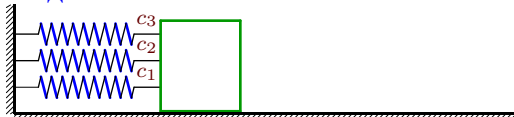
1



$$c_1 = 4 \text{ Н/м}, c_2 = 5 \text{ Н/м}, \\ c_3 = 4 \text{ Н/м}, m = 2 \text{ кг}.$$

### Задача D23.34.

1



$$c_1 = 8 \text{ Н/м}, c_2 = 3 \text{ Н/м}, \\ c_3 = 2 \text{ Н/м}, m = 2 \text{ кг}.$$

**D23 Ответы.****Свободное колебание точки**

23.03.2012

| №  | $c_0$ , Н/м | $k$ , $\text{с}^{-1}$ |
|----|-------------|-----------------------|
| 1  | 0.533       | 0.516                 |
| 2  | 5.222       | 1.616                 |
| 3  | 0.745       | 0.610                 |
| 4  | 9.000       | 1.500                 |
| 5  | 15.000      | 1.936                 |
| 6  | 6.556       | 1.280                 |
| 7  | 0.632       | 0.397                 |
| 8  | 1.800       | 0.671                 |
| 9  | 1.083       | 0.736                 |
| 10 | 0.444       | 0.333                 |
| 11 | 0.325       | 0.570                 |
| 12 | 9.714       | 1.394                 |
| 13 | 0.625       | 0.395                 |
| 14 | 9.000       | 1.342                 |
| 15 | 15.000      | 2.739                 |
| 16 | 3.833       | 0.876                 |
| 17 | 3.100       | 0.880                 |
| 18 | 1.143       | 0.478                 |
| 19 | 11.000      | 3.317                 |
| 20 | 0.571       | 0.756                 |
| 21 | 13.000      | 1.612                 |
| 22 | 11.000      | 1.915                 |
| 23 | 8.000       | 2.000                 |
| 24 | 15.000      | 2.236                 |
| 25 | 0.236       | 0.486                 |
| 26 | 4.222       | 2.055                 |
| 27 | 8.000       | 1.414                 |
| 28 | 3.714       | 1.363                 |
| 29 | 6.556       | 1.810                 |
| 30 | 5.667       | 1.683                 |
| 31 | 8.833       | 2.102                 |
| 32 | 5.800       | 2.408                 |
| 33 | 1.429       | 0.845                 |
| 34 | 13.000      | 2.550                 |

D23 файл о23d1A