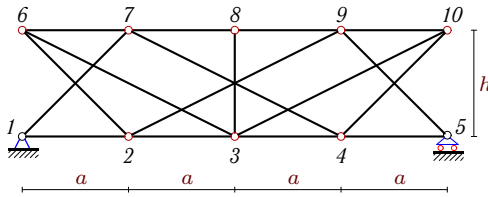


Линии влияния усилий в стержнях фермы

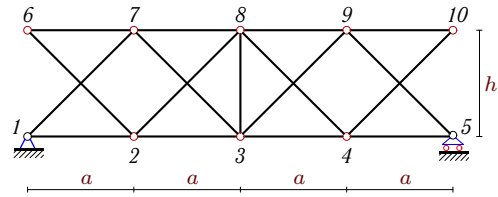
Найти максимальное и минимальное усилие в указанных стержнях фермы от действия постоянной q_p и временной q_{vr} нагрузки, равномерно распределенной по нижнему или верхнему поясу. Дано: $a = 1$ м, $h = 1$ м.

Задача 25.1.



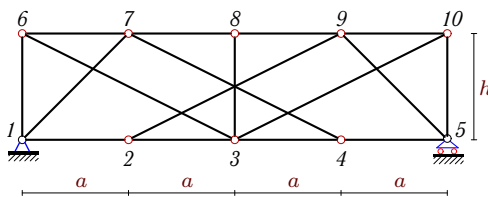
$q_{vr} = 15$ кН/м, $q_p = 6$ кН/м.
Груз поверху: S_{2-3} , S_{8-9} .

Задача 25.2.



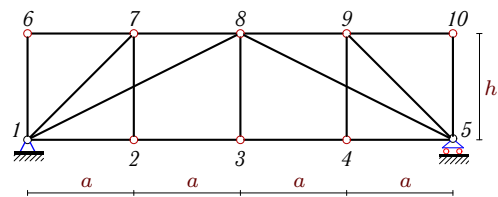
$q_{vr} = 13$ кН/м, $q_p = 3$ кН/м.
Груз поверху: S_{2-3} , S_{9-10} .

Задача 25.3.



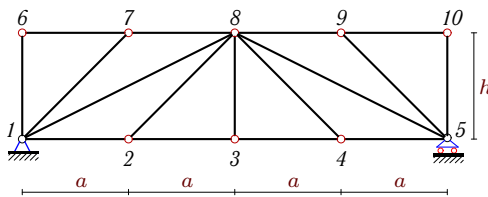
$q_{vr} = 13$ кН/м, $q_p = 4$ кН/м.
Груз понизу: S_{2-3} , S_{8-9} .

Задача 25.4.



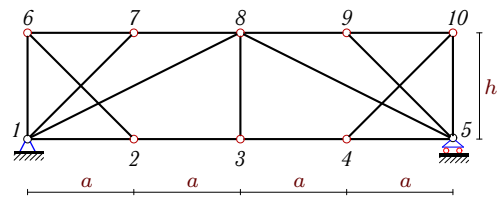
$q_{vr} = 15$ кН/м, $q_p = 5$ кН/м.
Груз понизу: S_{1-8} , S_{8-9} .

Задача 25.5.



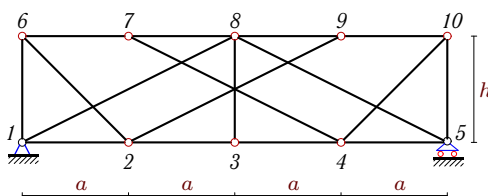
$q_{vr} = 18$ кН/м, $q_p = 7$ кН/м.
Груз понизу: S_{1-2} , S_{3-8} .

Задача 25.6.



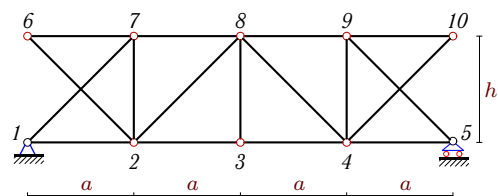
$q_{vr} = 15$ кН/м, $q_p = 6$ кН/м.
Груз понизу: S_{1-2} , S_{4-5} .

Задача 25.7.



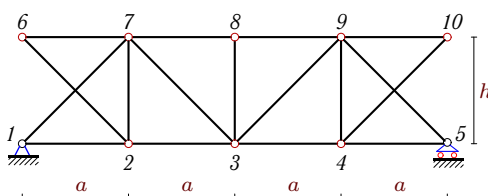
$q_{vr} = 19$ кН/м, $q_p = 6$ кН/м.
Груз понизу: S_{1-2} , S_{8-9} .

Задача 25.8.



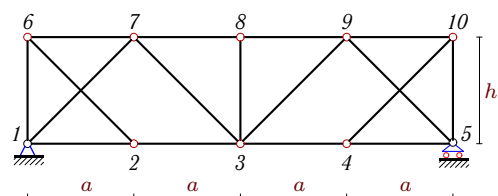
$q_{vr} = 16$ кН/м, $q_p = 7$ кН/м.
Груз поверху: S_{2-7} , S_{8-9} .

Задача 25.9.

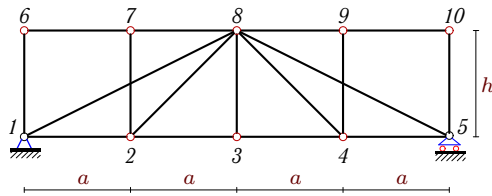


$q_{vr} = 13$ кН/м, $q_p = 4$ кН/м.
Груз поверху: S_{3-7} , S_{4-5} .

Задача 25.10.

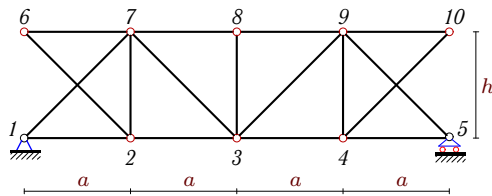


$q_{vr} = 15$ кН/м, $q_p = 4$ кН/м.
Груз поверху: S_{3-7} , S_{4-5} .

Задача 25.11.

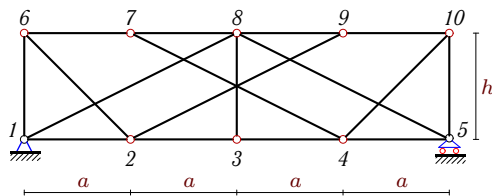
$$q_{vr} = 13 \text{ кН/м}, q_p = 7 \text{ кН/м}.$$

Груз понизу: S_{1-2}, S_{3-8} .

Задача 25.13.

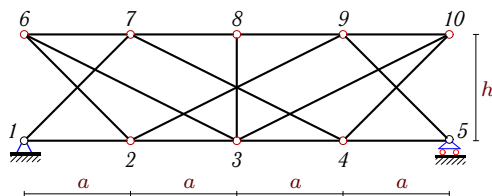
$$q_{vr} = 17 \text{ кН/м}, q_p = 4 \text{ кН/м}.$$

Груз поверху: S_{3-7}, S_{7-8} .

Задача 25.15.

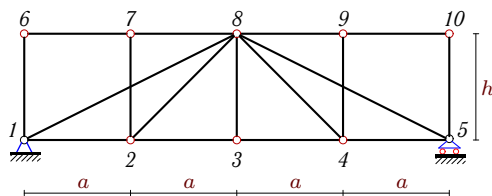
$$q_{vr} = 13 \text{ кН/м}, q_p = 4 \text{ кН/м}.$$

Груз понизу: S_{1-2}, S_{7-8} .

Задача 25.17.

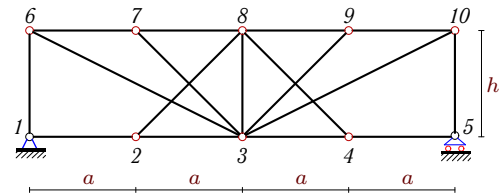
$$q_{vr} = 17 \text{ кН/м}, q_p = 4 \text{ кН/м}.$$

Груз понизу: S_{2-3}, S_{7-8} .

Задача 25.19.

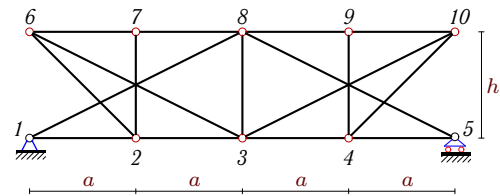
$$q_{vr} = 13 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз поверху: S_{1-2}, S_{1-6} .

Задача 25.12.

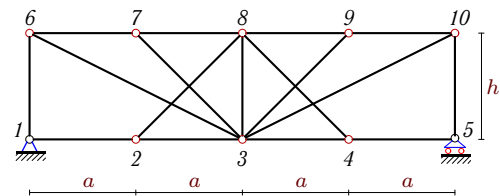
$$q_{vr} = 17 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз поверху: S_{6-7}, S_{8-9} .

Задача 25.14.

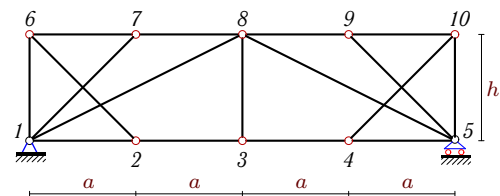
$$q_{vr} = 18 \text{ кН/м}, q_p = 5 \text{ кН/м}.$$

Груз понизу: S_{1-2}, S_{9-10} .

Задача 25.16.

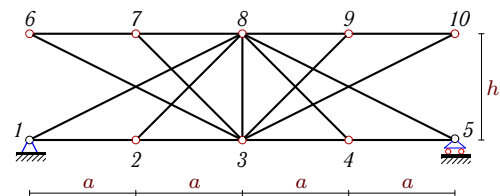
$$q_{vr} = 13 \text{ кН/м}, q_p = 5 \text{ кН/м}.$$

Груз понизу: S_{2-3}, S_{6-7} .

Задача 25.18.

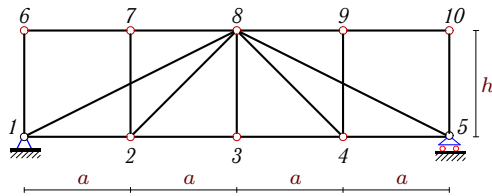
$$q_{vr} = 13 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз понизу: S_{1-2}, S_{8-9} .

Задача 25.20.

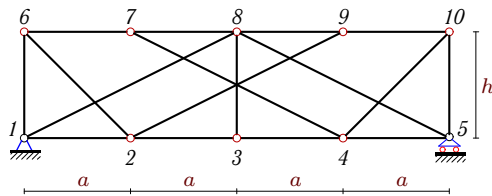
$$q_{vr} = 19 \text{ кН/м}, q_p = 4 \text{ кН/м}.$$

Груз поверху: S_{1-2}, S_{6-7} .

Задача 25.21.

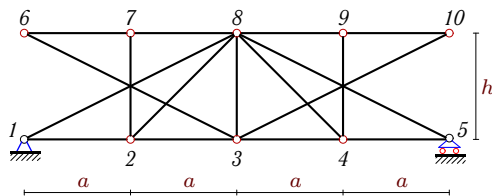
$$q_{vr} = 13 \text{ кН/м}, q_p = 7 \text{ кН/м}.$$

Груз сверху: S_{1-2}, S_{1-6} .

Задача 25.23.

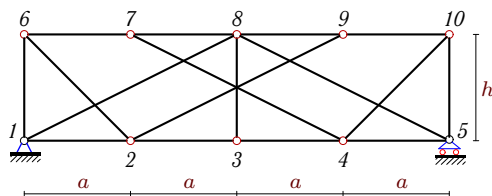
$$q_{vr} = 18 \text{ кН/м}, q_p = 5 \text{ кН/м}.$$

Груз сверху: S_{1-2}, S_{6-7} .

Задача 25.25.

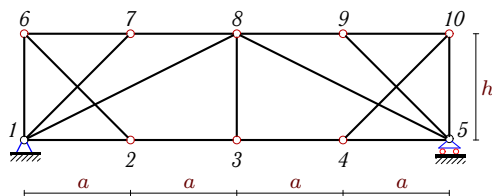
$$q_{vr} = 15 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз снизу: S_{1-2}, S_{3-8} .

Задача 25.27.

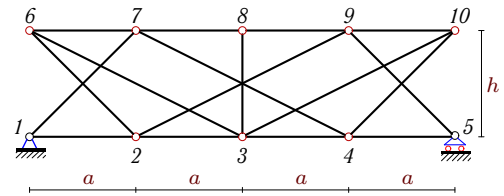
$$q_{vr} = 14 \text{ кН/м}, q_p = 4 \text{ кН/м}.$$

Груз снизу: S_{1-2}, S_{4-5} .

Задача 25.29.

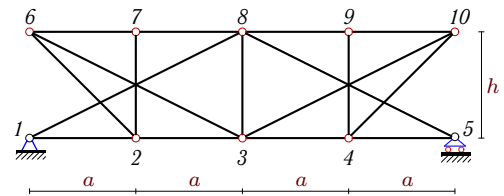
$$q_{vr} = 18 \text{ кН/м}, q_p = 3 \text{ кН/м}.$$

Груз снизу: S_{1-2}, S_{4-5} .

Задача 25.22.

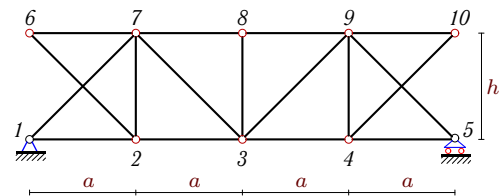
$$q_{vr} = 18 \text{ кН/м}, q_p = 5 \text{ кН/м}.$$

Груз снизу: S_{2-3}, S_{6-7} .

Задача 25.24.

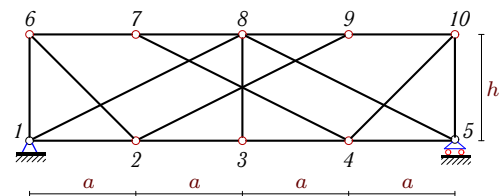
$$q_{vr} = 19 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз сверху: S_{1-2}, S_{7-8} .

Задача 25.26.

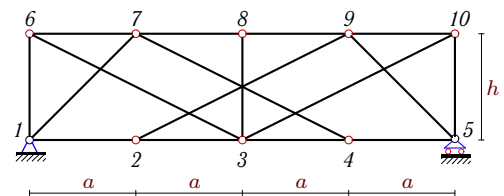
$$q_{vr} = 13 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

Груз снизу: S_{3-7}, S_{1-7} .

Задача 25.28.

$$q_{vr} = 16 \text{ кН/м}, q_p = 5 \text{ кН/м}.$$

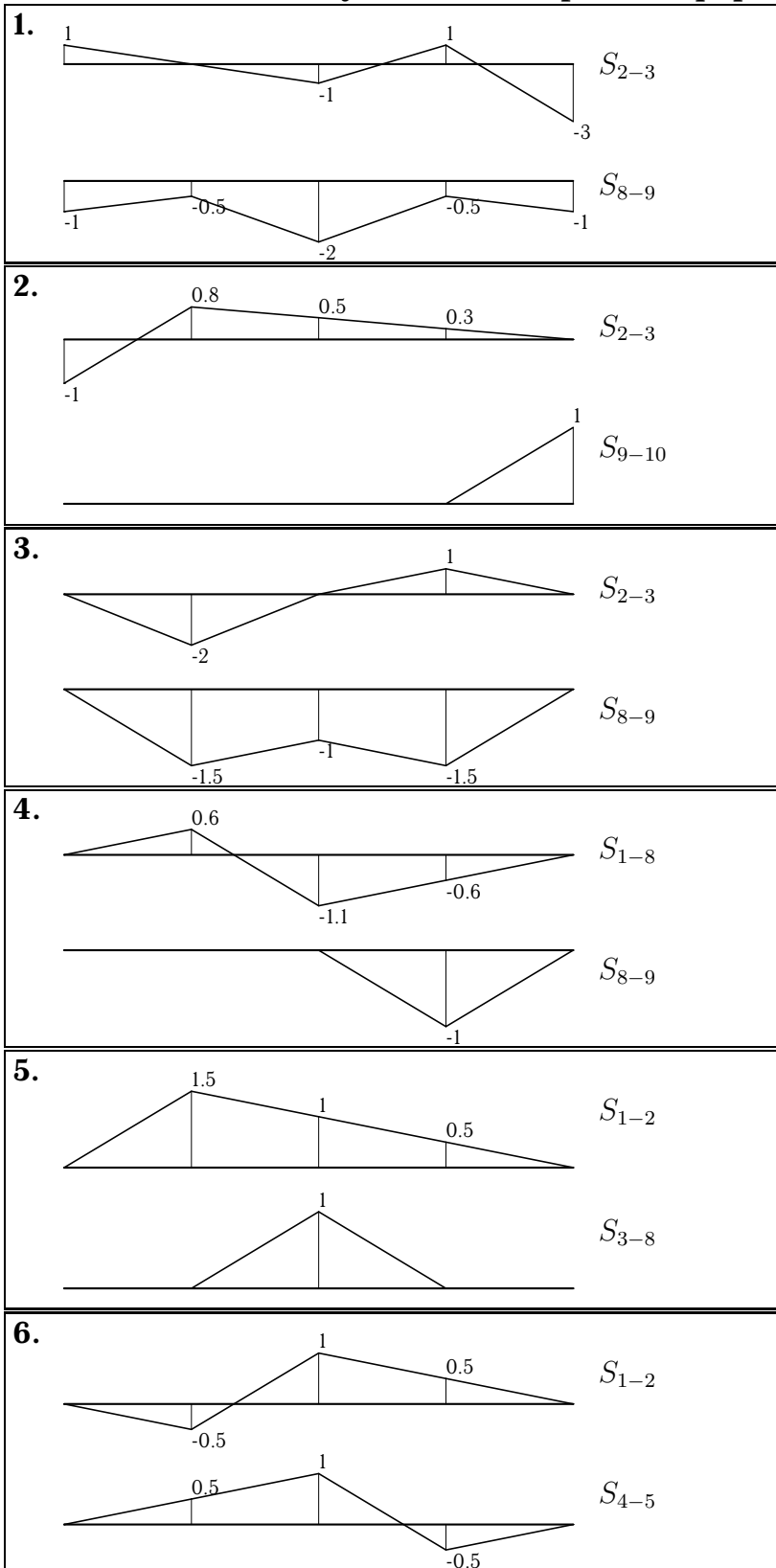
Груз снизу: S_{1-2}, S_{6-7} .

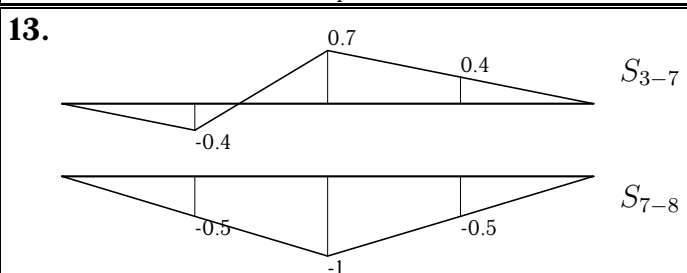
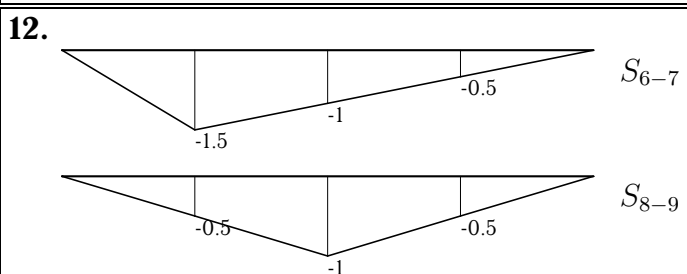
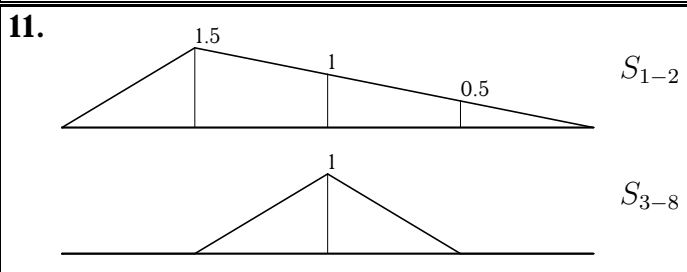
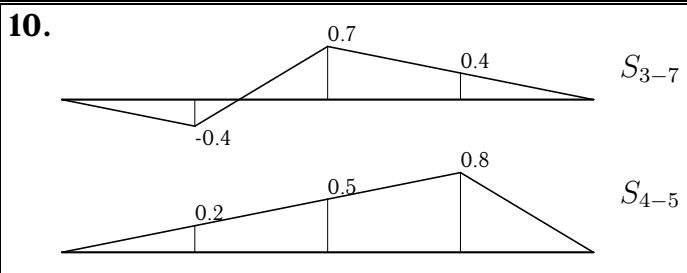
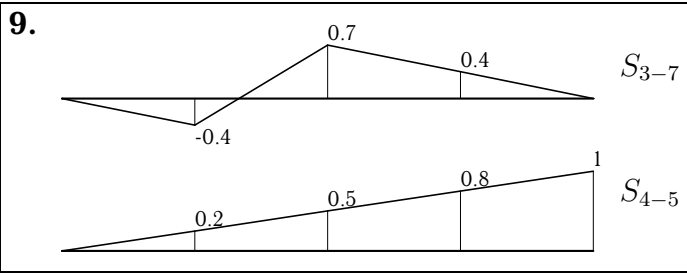
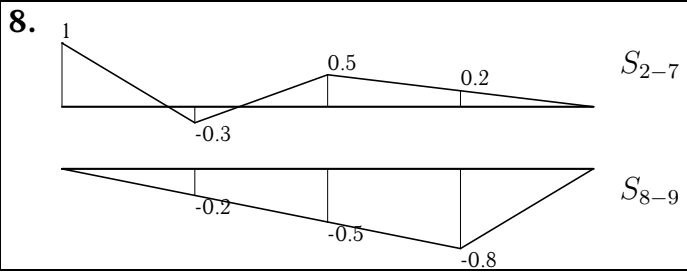
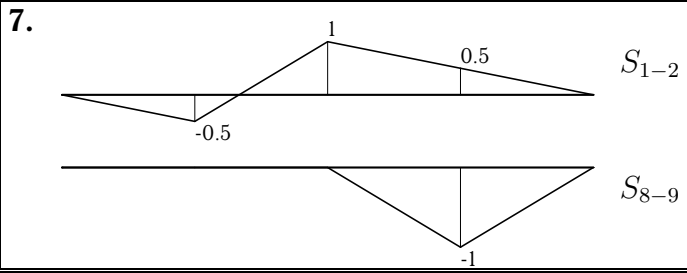
Задача 25.30.

$$q_{vr} = 13 \text{ кН/м}, q_p = 6 \text{ кН/м}.$$

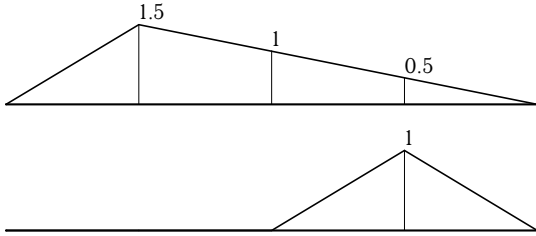
Груз сверху: S_{6-7}, S_{4-5} .

Линии влияния усилий в стержнях фермы





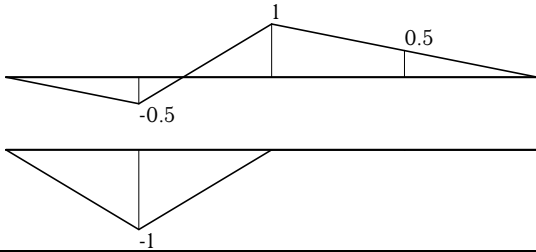
14.



S_{1-2}

S_{9-10}

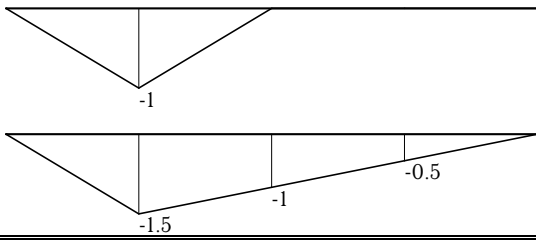
15.



S_{1-2}

S_{7-8}

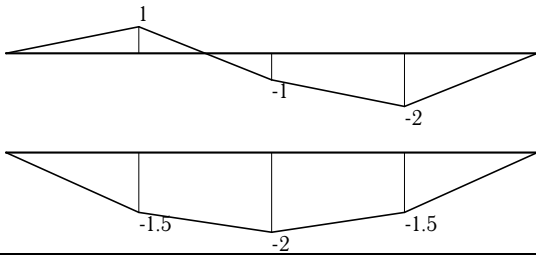
16.



S_{2-3}

S_{6-7}

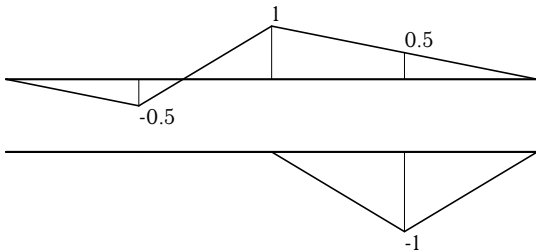
17.



S_{2-3}

S_{7-8}

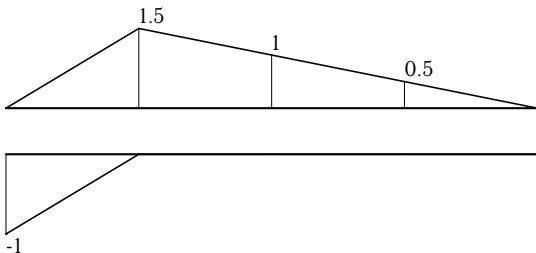
18.



S_{1-2}

S_{8-9}

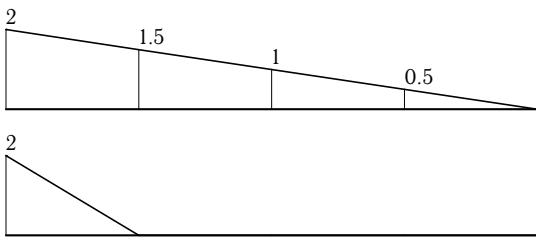
19.



S_{1-2}

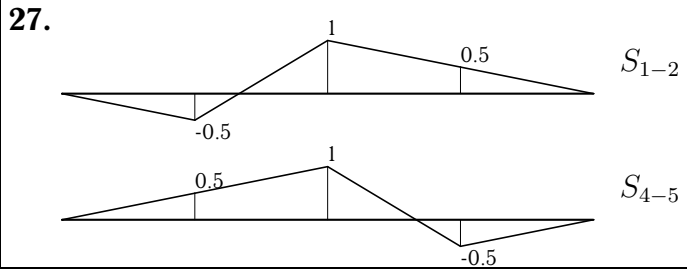
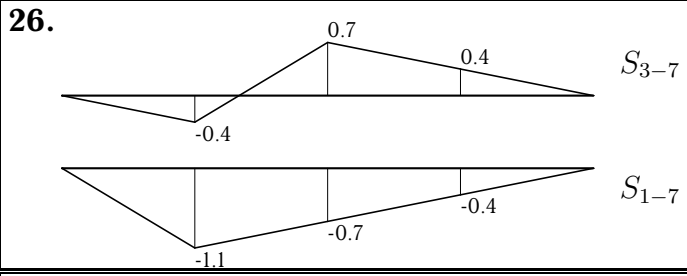
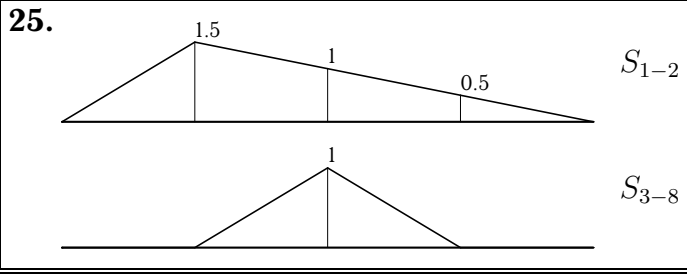
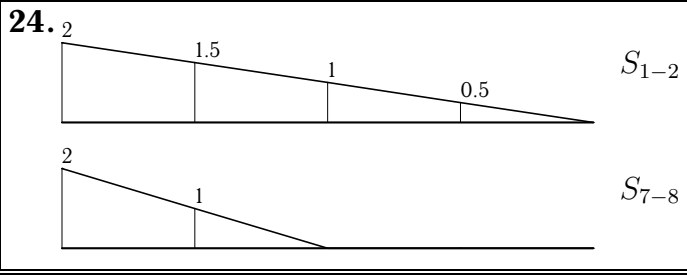
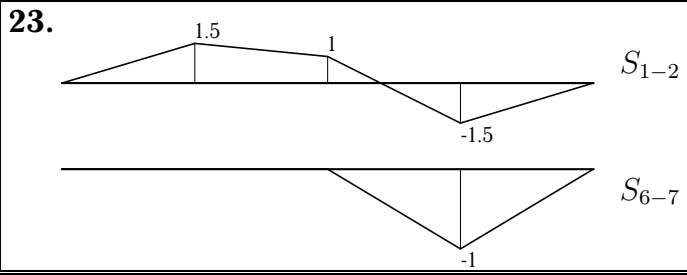
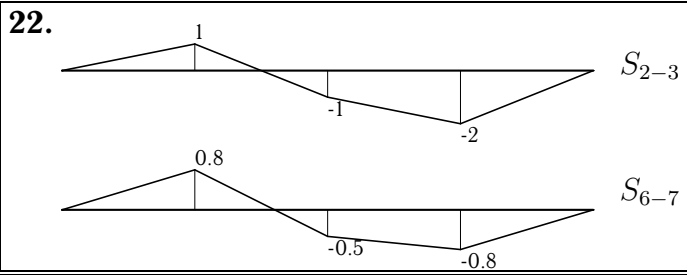
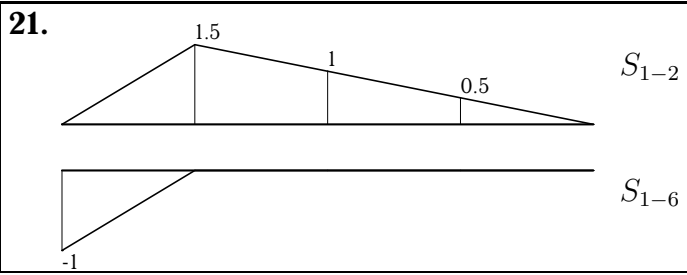
S_{1-6}

20.

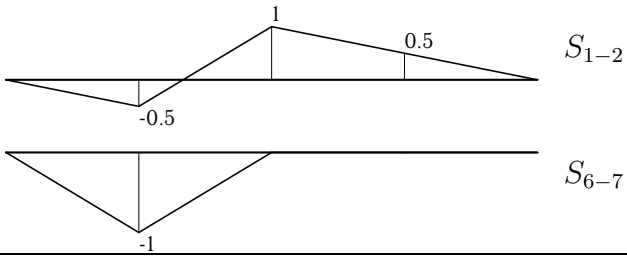


S_{1-2}

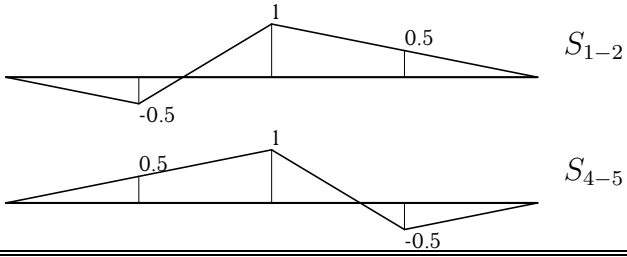
S_{6-7}



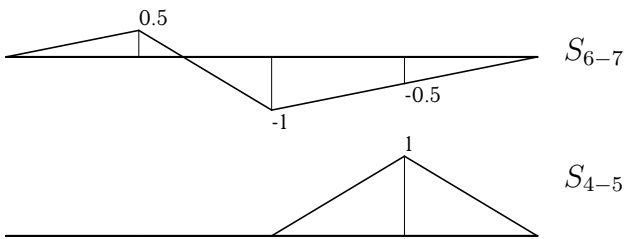
28.



29.



30.



| № | | S_p | S_{min} | S_{max} | | S_p | S_{min} | S_{max} |
|----|-----------|---------|-----------|-----------|------------|---------|-----------|-----------|
| 1 | S_{2-3} | -6.000 | -34.125 | 7.125 | S_{8-9} | -24.000 | -84.000 | -24.000 |
| 2 | S_{2-3} | 3.000 | -0.714 | 19.714 | S_{9-10} | 1.500 | 1.500 | 8.000 |
| 3 | S_{2-3} | -4.000 | -30.000 | 9.000 | S_{8-9} | -16.000 | -68.000 | -16.000 |
| 4 | S_{1-8} | -5.590 | -27.951 | 0.000 | S_{8-9} | -5.000 | -20.000 | -5.000 |
| 5 | S_{1-2} | 21.000 | 21.000 | 75.000 | S_{3-8} | 7.000 | 7.000 | 25.000 |
| 6 | S_{1-2} | 6.000 | 1.000 | 26.000 | S_{4-5} | 6.000 | 1.000 | 26.000 |
| 7 | S_{1-2} | 6.000 | -0.333 | 31.333 | S_{8-9} | -6.000 | -25.000 | -6.000 |
| 8 | S_{2-7} | 7.000 | 5.933 | 24.067 | S_{8-9} | -10.500 | -34.500 | -10.500 |
| 9 | S_{3-7} | 2.828 | -0.236 | 15.085 | S_{4-5} | 8.000 | 8.000 | 34.000 |
| 10 | S_{3-7} | 2.828 | -0.707 | 16.971 | S_{4-5} | 6.000 | 6.000 | 28.500 |
| 11 | S_{1-2} | 21.000 | 21.000 | 60.000 | S_{3-8} | 7.000 | 7.000 | 20.000 |
| 12 | S_{6-7} | -18.000 | -69.000 | -18.000 | S_{8-9} | -12.000 | -46.000 | -12.000 |
| 13 | S_{3-7} | 2.828 | -1.179 | 18.856 | S_{7-8} | -8.000 | -42.000 | -8.000 |
| 14 | S_{1-2} | 15.000 | 15.000 | 69.000 | S_{9-10} | 5.000 | 5.000 | 23.000 |
| 15 | S_{1-2} | 4.000 | -0.333 | 21.333 | S_{7-8} | -4.000 | -17.000 | -4.000 |
| 16 | S_{2-3} | -5.000 | -18.000 | -5.000 | S_{6-7} | -15.000 | -54.000 | -15.000 |
| 17 | S_{2-3} | -8.000 | -54.750 | 4.750 | S_{7-8} | -20.000 | -105.000 | -20.000 |
| 18 | S_{1-2} | 6.000 | 1.667 | 23.333 | S_{8-9} | -6.000 | -19.000 | -6.000 |
| 19 | S_{1-2} | 18.000 | 18.000 | 57.000 | S_{1-6} | -3.000 | -9.500 | -3.000 |
| 20 | S_{1-2} | 16.000 | 16.000 | 92.000 | S_{6-7} | 4.000 | 4.000 | 23.000 |
| 21 | S_{1-2} | 21.000 | 21.000 | 60.000 | S_{1-6} | -3.500 | -10.000 | -3.500 |
| 22 | S_{2-3} | -10.000 | -59.500 | 3.500 | S_{6-7} | -2.500 | -22.300 | 8.300 |
| 23 | S_{1-2} | 5.000 | -16.600 | 44.600 | S_{6-7} | -5.000 | -23.000 | -5.000 |
| 24 | S_{1-2} | 24.000 | 24.000 | 100.000 | S_{7-8} | 12.000 | 12.000 | 50.000 |
| 25 | S_{1-2} | 18.000 | 18.000 | 63.000 | S_{3-8} | 6.000 | 6.000 | 21.000 |
| 26 | S_{3-7} | 4.243 | 1.179 | 16.499 | S_{1-7} | -12.728 | -40.305 | -12.728 |
| 27 | S_{1-2} | 4.000 | -0.667 | 22.667 | S_{4-5} | 4.000 | -0.667 | 22.667 |
| 28 | S_{1-2} | 5.000 | -0.333 | 26.333 | S_{6-7} | -5.000 | -21.000 | -5.000 |
| 29 | S_{1-2} | 3.000 | -3.000 | 27.000 | S_{4-5} | 3.000 | -3.000 | 27.000 |
| 30 | S_{6-7} | -6.000 | -23.333 | -1.667 | S_{4-5} | 6.000 | 6.000 | 19.000 |