

## Размещение вершин графа на линейке

Найти наилучшее размещение графа на линейке после трех циклов генетического алгоритма. Качество размещения оценивается суммой<sup>1</sup>

$$L = \sum_i^5 \sum_j^5 d_{ij} a_{ij},$$

где  $d_{ij}$  — расстояние (в ребрах) по линейке между вершинами  $v_i$  и  $v_j$ ,  $a_{ij}$  — соответствующий элемент матрицы смежности (0 или 1). На каждом этапе  $k = 1, 2, 3$  эволюции на хромосому  $h_i = [v_1, v_2, \dots, v_5]$  с лучшим качеством действует оператор мутации  $R_k$  инверсионного типа, генерирующий хромосому  $h'_i = [v_1, v_2, \dots, v_k, v_5, \dots, v_{k+1}]$ . Хромосома с худшим качеством удаляется из популяции. Найти  $\min L$ . При равных качествах хромосом предпочтение отдается хромосоме с меньшим номером.

**Задача 15.1.** *Алехин Игорь*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.2.** *Байкова Мария*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

1	5	3	4	2
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**Задача 15.3.** *Бак Илья*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.4.** *Гольденберг Павел*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.5.** *Гусев Сергей*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.6.** *Ерёмин Станислав*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.7.** *Ермолаева Наталья*

1) 

1	2	3	4	5
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 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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**Задача 15.8.** *Зайцев Андрей*

1) 

1	2	3	4	5
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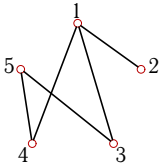
  
 2) 

2	1	3	4	5
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 3) 

5	2	3	4	1
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<sup>1</sup>Емельянов В.В., Курейчик В.М., Курейчик В.В. Теория и практика эволюционного моделирования. — М.: ФИЗМАТЛИТ, 2003

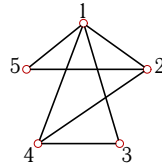
**Задача 15.9.***Кленова Ирина*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

5	2	3	4	1
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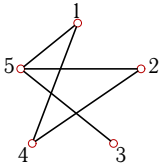
**Задача 15.10.***Миронов Вадим*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

5	2	3	4	1
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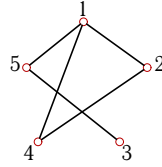
**Задача 15.11.***Михайлов Дмитрий*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

1	5	3	4	2
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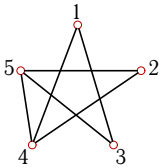
**Задача 15.12.***Огневский Павел*

- 1) 

1	2	3	4	5
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- 2) 

1	3	2	4	5
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- 3) 

5	2	3	4	1
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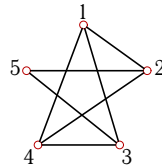
**Задача 15.13.***Пур Мохаммад Бехруз*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

5	2	3	4	1
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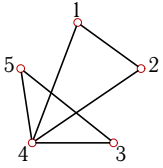
**Задача 15.14.***Кондратьев Илья*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

5	2	3	4	1
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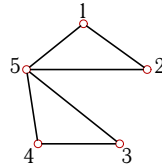
**Задача 15.15.***Попов Алексей*

- 1) 

1	2	3	4	5
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- 2) 

1	3	2	4	5
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- 3) 

5	2	3	4	1
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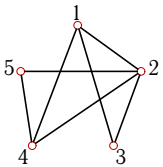
**Задача 15.16.***Сбытова Екатерина*

- 1) 

1	2	3	4	5
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- 2) 

1	3	2	4	5
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- 3) 

5	2	3	4	1
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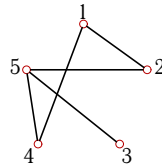
**Задача 15.17.***Сурков Роман*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

1	5	3	4	2
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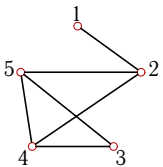
**Задача 15.18.***Ткачев Константин*

- 1) 

1	2	3	4	5
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- 2) 

1	3	2	4	5
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- 3) 

1	5	3	4	2
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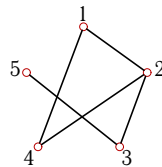
**Задача 15.19.***Толченова Екатерина*

- 1) 

1	2	3	4	5
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- 2) 

2	1	3	4	5
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- 3) 

5	2	3	4	1
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**Задача 15.20.***Фадеев Александр*

- 1) 

1	2	3	4	5
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- 2) 

1	3	2	4	5
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- 3) 

5	2	3	4	1
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