**Корреляционный и регрессионный анализ**

По данным, полученным в результате выборочного наблюдения, требуется:

1. Найти уравнение линейной регрессии *Y* на *X* и *Х* на *Y*.

2. Оценить тесноту связи.

3. Построить графики регрессий.

4. Найти интервальную оценку коэффициентов *k* и *b* с доверительной вероятностью α = 0.95 и проверить значимость уравнения регрессии *Y* на *Х* по критерию Фишера – Снедекера при уровне значимости α = 0.95.

***Варианты заданий***

Вариант №1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 28,3 | 28,4 | 28,5 | 30,5 | 28,5 | 28,6 | 30,6 | 28,8 | 28,8 | 29,3 | 31,8 | 31,1 | 31,4 | 30,1 | 31,2 |
| *Х* | 26,1 | 27,2 | 26,3 | 26,2 | 27,3 | 26,5 | 27,7 | 26,9 | 26,9 | 26,0 | 27,4 | 26,8 | 27,0 | 27,6 | 28,6 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 31,9 | 37,3 | 35,8 | 34,3 | 32,3 | 30,9 | 30,4 | 30,2 | 29,9 | 29,4 | 29,0 | 28,9 | 29,7 | 29,3 | 29,5 |
| *Х* | 28,9 | 33,5 | 32,2 | 31,0 | 31,2 | 28,5 | 28,1 | 27,9 | 27,8 | 27,5 | 27,0 | 27,3 | 26,7 | 26,6 | 26,4 |

Вариант №2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 9,6 | 11,9 | 10,2 | 11,2 | 9,6 | 9,7 | 13,3 | 10,7 | 9,5 | 12,2 | 10,3 | 11,5 | 13,2 | 12,4 | 10,9 |
| *Х* | -2,6 | -2,2 | -2,4 | -1,7 | -2,1 | -2,5 | -2,3 | -2,8 | -2,9 | -2,7 | -1,9 | -2,0 | -3,0 | -3,3 | -3,2 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 13,7 | 12,5 | 10,6 | 13,8 | 14,1 | 9,2 | 8,8 | 8,5 | 9,2 | 7,8 | 13,4 | 13,9 | 14,3 | 14,5 | 13,0 |
| *Х* | -3,7 | -3,9 | -3,5 | -3,1 | -3,8 | -4,3 | -4,1 | -4,5 | -4,7 | -4,9 | -3,4 | -3,6 | -4,2 | -4,6 | -1,8 |

Вариант №3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 12,6 | 12,5 | 12,9 | 13,1 | 13,7 | 13,5 | 13,7 | 12,8 | 13,1 | 12,9 | 13,1 | 12,9 | 12,9 | 12,7 | 12,5 |
| *Х* | 24,0 | 23,8 | 23,6 | 23,4 | 23,3 | 23,2 | 23,1 | 22,8 | 22,6 | 22,3 | 22,1 | 22,0 | 21,9 | 21,8 | 21,8 |

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| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 12,7 | 12,8 | 12,7 | 12,7 | 12,9 | 12,9 | 12,9 | 13,0 | 12,9 | 13,0 | 13,0 | 12,9 | 13 | 12,9 | 12,8 |
| *Х* | 21,7 | 21,7 | 21,7 | 21,7 | 21,6 | 21,6 | 21,6 | 21,6 | 21,6 | 21,5 | 21,5 | 21,5 | 21,5 | 21,4 | 21,4 |

Вариант №4

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 0,9 | 0,9 | 1,8 | 0,9 | 1,3 | 0,4 | 1,8 | 2,2 | 1,8 | 1,8 | 1,8 | 2,2 | 2,2 | 2,7 | 2,2 |
| *Х* | 9,4 | 9,4 | 9,4 | 9,4 | 9,4 | 9,6 | 9,6 | 9,6 | 9,7 | 9,7 | 9,7 | 9,9 | 9,9 | 10,1 | 10,1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 1,8 | 2,2 | 1,8 | 1,8 | 1,8 | 1,8 | 1,8 | 2,2 | 1,8 | 1,3 | 0,9 | 1,3 | 0,4 | 0,9 | 0,9 |
| *Х* | 10,3 | 10,3 | 10,3 | 10,5 | 10,5 | 10,5 | 10,5 | 10,5 | 10,5 | 10,7 | 10,7 | 10,7 | 10,7 | 10,7 | 10,9 |

Вариант №5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 4,0 | 4,2 | 4,4 | 4,5 | 4,8 | 5,1 | 4,7 | 5,1 | 5,5 | 5,5 | 5,5 | 5,6 | 6,0 | 6,1 | 6,2 |
| *Х* | 2,2 | 1,8 | 4,0 | 4,0 | 4,9 | 3,6 | 4,5 | 4,9 | 5,4 | 4,5 | 4,5 | 5,4 | 4,9 | 5,4 | 6,3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 6,4 | 6,9 | 7,0 | 7,2 | 7,1 | 7,1 | 7,6 | 8,0 | 8,2 | 8,3 | 8,6 | 8,7 | 8,8 | 8,7 | 8,7 |
| *Х* | 6,7 | 6,7 | 7,2 | 6,7 | 5,8 | 5,8 | 5,4 | 5,8 | 4,0 | 3,6 | 3,1 | 2,7 | 2,2 | 2,7 | 2,7 |

Вариант №6

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 10,6 | 10,9 | 11,1 | 11,0 | 10,9 | 11,1 | 11,3 | 11,4 | 11,4 | 11,5 | 11,5 | 16,4 | 11,9 | 12,1 | 12,1 |
| *Х* | 10,7 | 10,9 | 11,2 | 11,2 | 11,0 | 11,6 | 11,4 | 11,5 | 11,5 | 11,6 | 11,6 | 11,6 | 11,4 | 15,1 | 11,2 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 10,8 | 10,6 | 10,4 | 10,1 | 10,2 | 10,2 | 10,1 | 10,2 | 10,4 | 10,7 | 11,1 | 11,4 | 11,3 | 12,1 | 12,2 |
| *Х* | 11,1 | 10,2 | 10,6 | 10,4 | 10,2 | 10,2 | 10,2 | 10,3 | 10,4 | 10,7 | 11,1 | 11,4 | 11,4 | 12,1 | 12,3 |

Вариант №7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 3,2 | 3,2 | 2,4 | 2,4 | 2,4 | 2,4 | 3,2 | 2,4 | 2,4 | 3,2 | 3,2 | 3,2 | 4,0 | 4,0 | 4,0 |
| *Х* | 6,3 | 5,4 | 5,8 | 5,4 | 4,5 | 5,4 | 4,9 | 5,4 | 4,9 | 5,8 | 5,8 | 6,3 | 7,2 | 7,2 | 7,6 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 4,8 | 4,8 | 4,8 | 4,0 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4,8 | 4 | 4 | 3,2 | 3,2 | 2,4 |
| *Х* | 8,5 | 7,2 | 8,9 | 8,9 | 7,6 | 7,6 | 9,4 | 8 | 8,5 | 7,6 | 6,7 | 7,2 | 7,2 | 5,8 | 5,8 |

Вариант №8

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 7,3 | 7,1 | 7,4 | 7,4 | 7,5 | 7,3 | 7,2 | 7,1 | 6,8 | 6,9 | 6,9 | 6,8 | 6,8 | 6,8 | 6,8 |
| *Х* | 18,1 | 18,2 | 17,9 | 16,9 | 16,7 | 17,2 | 17,7 | 17,7 | 17,8 | 17,8 | 17,8 | 18,1 | 17,9 | 17,9 | 17,9 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 6,7 | 6,6 | 6,6 | 6,6 | 6,2 | 6,2 | 6,1 | 6,1 | 6 | 6 | 6 | 5,9 | 5,9 | 5,8 | 5,5 |
| *Х* | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,8 | 17,7 | 17,7 |

Вариант №9

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 8,1 | 8 | 7,8 | 7,6 | 7,7 | 7,7 | 7 | 7,3 | 7,1 | 6,6 | 6,6 | 6,2 | 6,3 | 6,3 | 6,1 |
| *Х* | 16,8 | 16,8 | 16,7 | 16,7 | 16,6 | 16,6 | 16,6 | 16,6 | 16,6 | 16,4 | 16,4 | 16,4 | 16,3 | 16,3 | 16,3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 5,9 | 5,9 | 5,9 | 6,2 | 6,3 | 6,3 | 7,6 | 6,2 | 7 | 6,6 | 6,9 | 8 | 6,2 | 6,9 | 6,9 |
| *Х* | 16,3 | 16,3 | 16,4 | 16,6 | 16,7 | 16,7 | 17,8 | 19,1 | 20,5 | 20,7 | 20,9 | 21,2 | 20,9 | 21,2 | 20,6 |

Вариант №10

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | -6,8 | -8,1 | -6,9 | -5,7 | -7 | -7 | -6,7 | -6,6 | -5,4 | -5,5 | -5,5 | -7 | -7,1 | -7,1 | -7,3 |
| *Х* | 28,2 | 28,2 | 28,2 | 28,2 | 28,2 | 28,2 | 28,2 | 28,2 | 28,2 | 28,3 | 28,3 | 28,3 | 28,3 | 28,3 | 28,3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | -7,2 | -6,1 | -6 | -7,2 | -7,3 | -7,3 | -7,3 | -5,8 | -5,5 | -5,8 | -6,2 | -5,9 | -6 | -5,9 | -6,1 |
| *Х* | 28,4 | 28,4 | 28,4 | 28,5 | 28,5 | 28,5 | 28,5 | 28,5 | 28,6 | 28,6 | 28,6 | 28,7 | 28,7 | 28,7 | 28,7 |

Вариант №11

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 15,1 | 14,9 | 14,6 | 14,2 | 14 | 14 | 14 | 14,2 | 14,4 | 14,9 | 14,9 | 15,7 | 15,9 | 16,2 | 16,8 |
| *Х* | 10,3 | 10,3 | 10,4 | 10,2 | 10,2 | 10,2 | 10,2 | 10,4 | 10,6 | 10,7 | 10,7 | 11,2 | 11,3 | 11,6 | 12,1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 16,8 | 17,1 | 18,5 | 19,6 | 19,7 | 19,7 | 20,3 | 21,1 | 22,4 | 23,6 | 24,7 | 25,1 | 25,6 | 25,6 | 25,2 |
| *Х* | 12,1 | 12,4 | 13,1 | 12,1 | 13 | 13 | 13 | 13,5 | 14,5 | 14,3 | 13,3 | 13 | 12,4 | 11,7 | 11,7 |

Вариант №12

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 1,7 | 2,2 | 2,1 | 2,3 | 1,9 | 1,8 | 1 | 0,6 | 0,3 | 0 | 3,9 | 3,6 | 2,5 | 2,2 | 2,1 |
| *Х* | 8,5 | 8,2 | 8,6 | 8,8 | 9,3 | 8,8 | 9 | 8,9 | 8,8 | 8,9 | 12,6 | 12,6 | 12,9 | 12,7 | 12,7 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 1,9 | 1,8 | 1,4 | 1 | 0,6 | 0,8 | 0,9 | 2,2 | 1,6 | 1,8 | 1,9 | 2,6 | 1,1 | 0,1 | 0 |
| *Х* | 12,5 | 12,6 | 12,5 | 12,4 | 12,3 | 12,2 | 12,2 | 12,7 | 12,7 | 12,5 | 12,3 | 12,3 | 12,3 | 12,2 | 12,7 |

Вариант №13

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 10,9 | 11,2 | 11,4 | 11,6 | 12,4 | 12,7 | 13,1 | 12,9 | 13,2 | 12,7 | 12,7 | 11,8 | 12,6 | 12,6 | 12,9 |
| *Х* | 0 | 0,3 | 0,5 | 0,4 | 1,4 | 1,5 | 1,5 | 1,5 | 1,2 | 2,5 | 2,5 | 3,7 | 3,9 | 3,6 | 2,5 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 12,7 | 12,7 | 12,5 | 12,6 | 12,5 | 12,5 | 5 | 5,2 | 5,5 | 4,8 | 5,1 | 5,5 | 5,6 | 5,5 | 5,3 |
| *Х* | 2,2 | 2,1 | 1,9 | 1,8 | 1,4 | 1,4 | 1,1 | 1,1 | 1 | 1,2 | 1,2 | 2,4 | 1,9 | 1,4 | 1,4 |

Вариант №14

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 0,4 | 0,4 | 0,4 | 0,4 | 0,4 | 0,9 | 1,3 | 1,8 | 1,3 | 0,9 | 0,9 | 0,9 | 0,9 | 1,3 | 1,8 |
| *Х* | 0 | 0,3 | 0,7 | 0,8 | 0,8 | 1,1 | 1,9 | 1,9 | 2,3 | 2,7 | 2,7 | 2,5 | 1,9 | 1,8 | 2,1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 2,7 | 2,2 | 2,7 | 2,2 | 1,8 | 1,8 | 1,8 | 1,3 | 1,8 | 0,9 | 1,3 | 1,3 | 0,9 | 0,9 | 0,9 |
| *Х* | 1,3 | 1,1 | 0,9 | 0,7 | 0,7 | 2,3 | 2,7 | 2,9 | 3 | 3,1 | 3,1 | 2,9 | 2,7 | 2,4 | 2 |

Вариант №15

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 18,6 | 19,6 | 20,8 | 21,3 | 21,7 | 21,8 | 22,9 | 22,8 | 23,4 | 23,1 | 14,9 | 15,3 | 15,6 | 16,5 | 17,1 |
| *Х* | 18,2 | 20,9 | 21,7 | 22,7 | 22,6 | 23,1 | 22,9 | 21,9 | 20,5 | 18,4 | 3 | 5,5 | 6,6 | 8,2 | 7,5 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 17,4 | 18 | 18,7 | 18,3 | 18,9 | 17,5 | 17,9 | 18 | 17,7 | 18,2 | 18,3 | 18,3 | 18,8 | 18,5 | 18,8 |
| *Х* | 8,5 | 9 | 13,3 | 6,5 | 8,3 | 17,9 | 19,4 | 20,7 | 22 | 21,9 | 20 | 21 | 20,9 | 18,2 | 15,4 |

Вариант №16

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| *Y* | -12,3 | -13,3 | -15,4 | -15,4 | -15 | -14,3 | -12,8 | -11,8 | -11,1 | -10,5 |
| *Х* | 1,3 | 2,8 | 5,4 | 5,8 | 7,3 | 10 | 12 | 9,1 | 13,6 | 13,3 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| *Y* | -10,5 | -9,5 | -8,4 | -9,1 | -10,1 | -9,7 | -9,7 | -8,7 | -7,4 | -9,2 |
| *Х* | 13,3 | 11,7 | 10,2 | 10,7 | 9,2 | 6,9 | 4,3 | 2,7 | 1 | 0,3 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 21 | 22 | 23 | 24 | 26 | 26 | 27 | 28 | 29 | 30 |
| *Y* | -18,8 | -18,8 | -17,7 | -16,9 | -17,4 | -16,1 | -15,6 | -15,3 | -14,4 | -13,1 |
| *Х* | 0,2 | 0,8 | 1,9 | 4,7 | 7,2 | 9,3 | 10,9 | 12,1 | 12,9 | 13 |

Вариант №17

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | -6,9 | -5,5 | -5,5 | -5,5 | -5,6 | -6 | -6 | -5,9 | -5,8 | -5,8 | -8,5 | -8,7 | -13 | -7,7 | -7,2 |
| *Х* | 29,3 | 29,3 | 29,3 | 29,3 | 29,2 | 28,6 | 28,6 | 28,7 | 28,8 | 28,9 | 24,6 | 27,1 | 25,4 | 28,2 | 28,9 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | -6,9 | -6,8 | -6,8 | -6,8 | -6,9 | -6,8 | -6,5 | -9,3 | -9,4 | -9,8 | -8 | -9,9 | -9,6 | -9,7 | -9,5 |
| *Х* | 29,3 | 29,4 | 29,4 | 29,4 | 29,3 | 29,4 | 29,8 | 20 | 17,4 | 19,9 | 27,8 | 25,3 | 25,9 | 27 | 24,6 |

Вариант №18

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 9 | 9 | 8 | 11 | 12 | 9 | 6 | 7 | 6 | 7 | -3,1 | -3,7 | -3,2 | -3,4 | -4,1 |
| *Х* | 29,4 | 29,8 | 20 | 17,4 | 19,9 | 27,8 | 25,3 | 25,9 | 27 | 24,6 | 25,5 | 26 | 26,1 | 26,2 | 26,3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | -4,3 | -4,3 | -4,5 | -4,5 | -5,2 | 5,2 | 4,3 | 4,1 | 4,6 | 4,4 | 5,1 | 6,8 | 7 | 5,4 | 6,7 |
| *Х* | 26,3 | 26,4 | 26,5 | 26,5 | 26,6 | 19,3 | 19,2 | 19,2 | 19,1 | 19,1 | 19,2 | 19,4 | 19,6 | 19,6 | 19,8 |

Вариант № 19

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 6,6 | 5,8 | 5,5 | 6 | 5,6 | 5,7 | 6,5 | 6,2 | 6,3 | 7,1 | 7,1 | 7,1 | 7,4 | 7,9 | 7,8 |
| *Х* | 53 | 53 | 53 | 52 | 52 | 52 | 51 | 51 | 51 | 50 | 50 | 49 | 46 | 47 | 48 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 8,2 | 8,6 | 8,1 | 9,2 | 8,7 | 8,7 | 9,1 | 7,8 | 7,8 | 8,1 | 7,8 | 7,4 | 7,3 | 7,1 | 6,6 |
| *Х* | 48 | 49 | 49 | 49 | 47 | 47 | 49 | 50 | 51 | 51 | 51 | 52 | 52 | 53 | 53 |

Вариант №20

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 6,8 | 6,6 | 6,6 | 6,7 | 6,8 | 6,8 | 6,8 | 7 | 7 | 7,1 | 7,1 | 7,1 | 7 | 7 | 6,8 |
| *Х* | 10,1 | 9,8 | 10,1 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 | 9,8 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 6,8 | 6,8 | 6,7 | 6,7 | 6,7 | 6,7 | 6,7 | 6,7 | 6,7 | 6,6 | 6,6 | 6,5 | 6,5 | 6,5 | 6,6 |
| *Х* | 9,8 | 9,8 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,7 | 9,6 | 9,6 | 9,6 |

Вариант №21

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 7,3 | 7,3 | 7,3 | 7,3 | 7,2 | 7,2 | 7,1 | 7,1 | 7,1 | 7,1 | 7,1 | 7,1 | 7,2 | 7,1 | 7,1 |
| *Х* | 5,9 | 5,9 | 5,9 | 5,3 | 5,4 | 5,9 | 5,3 | 4,8 | 4,7 | 5,3 | 5,3 | 5,3 | 5,3 | 4,8 | 5,3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 7,1 | 6,9 | 6,9 | 6,9 | 6,8 | 6,8 | 6,7 | 6,6 | 6,6 | 6,4 | 6,3 | 6,4 | 6,4 | 6,4 | 6,3 |
| *Х* | 5,3 | 4,6 | 4,2 | 4,1 | 4,4 | 4,4 | 3,8 | 3,8 | 3,7 | 3,4 | 3,3 | 2,9 | 3,4 | 3,4 | 3,2 |

Вариант №22

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 6,9 | 6,8 | 6,7 | 6,6 | 6,6 | 6,4 | 6,4 | 6,5 | 6,5 | 6,4 | 6,4 | 6,3 | 6,3 | 6,2 | 6,3 |
| *Х* | 5,8 | 5,2 | 5,2 | 5,1 | 4,8 | 4,8 | 4,5 | 4,9 | 4,9 | 4,7 | 4,7 | 4,7 | 4,9 | 4,4 | 5,1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 6,4 | 6,3 | 6,3 | 6,1 | 6,1 | 6,1 | 6,2 | 6,3 | 7,2 | 7,4 | 8,4 | 8,6 | 8,7 | 8,3 | 7,7 |
| *Х* | 5,6 | 5 | 4,1 | 4,2 | 4,3 | 4,3 | 4,4 | 5 | 6,1 | 6,4 | 7,8 | 7,4 | 7,1 | 6,3 | 6,2 |

Вариант №23

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 5,9 | 6,1 | 6,1 | 6,3 | 7,1 | 7,1 | 7,9 | 8,3 | 7,7 | 7 | 7 | 6,4 | 6 | 5,6 | 5,4 |
| *Х* | 8,5 | 8,6 | 8,6 | 8,2 | 8,3 | 8,4 | 8,4 | 8 | 7,9 | 7,8 | 7,8 | 7,7 | 7,6 | 7,6 | 7,5 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 5,4 | 5,7 | 5,8 | 5,5 | 5,2 | 5,2 | 4,9 | 4,7 | 4,4 | 4,1 | 3,9 | 3,8 | 3,7 | 3,6 | 3,4 |
| *Х* | 7,4 | 7,4 | 7,4 | 7,4 | 7,3 | 7,3 | 7,3 | 7,3 | 7,3 | 7,3 | 7,2 | 6,8 | 6,7 | 6,7 | 6,7 |

Вариант №24

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| *Y* | 5,2 | 4,9 | 4,7 | 4,4 | 4,1 | 3,9 | 3,8 | 3,7 | 3,6 | 3,4 | 3,4 | 3,3 | 3,2 | 2,9 | 2,7 |
| *Х* | 23,1 | 23,1 | 23,1 | 23,1 | 23,1 | 22,9 | 22,9 | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| *Y* | 2,6 | 2,8 | 2,8 | 2,6 | 2,3 | 2,3 | 2,8 | 3,1 | 4,5 | 5,9 | 6,6 | 7,1 | 8,1 | 8,4 | 10,1 |
| *Х* | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 | 22,7 | 22,8 | 23,3 | 24,2 | 24,8 | 23,4 | 22,3 | 20,9 | 20,9 | 21,2 |

Вариант №25

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| *Y* | -10,6 | -11 | -11,2 | -11,2 | -10,3 | -9,9 | -10 | -9,4 | -9,5 | -9,7 |
| *Х* | -4,3 | -10,2 | -11,4 | -12,4 | -12,3 | -12,9 | -12 | -12,8 | -8,5 | -8 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| *Y* | -9,7 | -9,5 | -9,5 | -9,9 | -10 | -9,4 | -9,4 | -9,5 | -9,7 | -10,6 |
| *Х* | -8 | -5,6 | -3,7 | -1,8 | -1,3 | -4,4 | -10,7 | -14,9 | -16,3 | -17,1 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Дни | 21 | 22 | 23 | 24 | 26 | 26 | 27 | 28 | 29 | 30 |
| *Y* | -10,6 | -10,3 | -10 | -10,5 | -10,4 | -10,4 | -9,8 | -9,8 | -10,5 | -10 |
| *Х* | -17,1 | -15,4 | -15,9 | -16,3 | -16,6 | -17 | -13 | -11,4 | -10,4 | -9,9 |