

Задача 19. Определить порядок аппроксимации 2-шагового метода

$$\frac{1}{h}(a_0 y_i + a_1 y_{i-1} + a_2 y_{i-2}) = b_0 f(t_i, y_i) + b_1 f(t_{i-1}, y_{i-1}) + b_2 f(t_{i-2}, y_{i-2}),$$

$$i = 2, 3, \dots, n \text{ решения задачи Коши } \begin{cases} y' = f(t, y), \\ y(t_0) = y_0. \end{cases}$$

Таблица к задаче 19

| № | a_0 | a_1 | a_2 | b_0 | b_1 | b_2 | № | a_0 | a_1 | a_2 | b_0 | b_1 | b_2 |
|----|-------|-------|-------|-------|-------|-------|----|-------|-------|-------|-------|-------|-------|
| 1 | 1.5 | -2 | 0.5 | 1 | 0 | 0 | 16 | -1.4 | 2 | -0.6 | 4 | -3.8 | -1 |
| 2 | 2.5 | -4 | 1.5 | 0 | 3 | -2 | 17 | 2.4 | -3 | 0.6 | 2 | 0 | -0.2 |
| 3 | 1 | -1.5 | 0.5 | 2 | 4 | -5.5 | 18 | 7 | -13 | 6 | 0 | 7.5 | -6.5 |
| 4 | 3.5 | -6 | 2.5 | 1 | 2 | -2 | 19 | 3 | -3.2 | 0.2 | 0 | 2.8 | 0 |
| 5 | 1 | 0 | -1 | 1/3 | 4/3 | 1/3 | 20 | 8 | -15 | 7 | 0 | 8.5 | -7.5 |
| 6 | 2 | -3 | 1 | 0 | 2.5 | -1.5 | 21 | 4.2 | -8 | 3.8 | 2 | 0 | -1.6 |
| 7 | 4.5 | -8 | 3.5 | 0 | 5 | -4 | 22 | 7 | -10 | 3 | 0 | 5 | -1 |
| 8 | 1.7 | -2.4 | 0.7 | 1 | 3 | -3 | 23 | 6.5 | -8 | 1.5 | 0 | 0 | 5 |
| 9 | 10 | -19 | 9 | 0 | 1.5 | -9.5 | 24 | 9 | -17 | 8 | 0 | 9.5 | -8.5 |
| 10 | 1.2 | -2 | 0.88 | 0 | 2 | -1.6 | 25 | 5.1 | -6 | 0.9 | 1 | 0 | 5.2 |
| 11 | 0.7 | -1 | 0.3 | 1 | -2.6 | 2 | 26 | 4.3 | -7 | 2.7 | 3.6 | -1 | -1 |
| 12 | 3 | -5 | 2 | 5/4 | 1 | -5/4 | 27 | 1.9 | -2.8 | 0.9 | 0 | 2 | -1 |
| 13 | 4 | -7 | 3 | 5/4 | 2 | -9/4 | 28 | 6.5 | -12 | 5.5 | 0 | 7 | -6 |
| 14 | 5 | -9 | 4 | 0 | 5.5 | -4.5 | 29 | 1.8 | -2.6 | 0.8 | 1 | 1 | -1 |
| 15 | 6 | -11 | 5 | 0 | 6.5 | -5.5 | 30 | 5.5 | -9 | 4.5 | 1 | 4 | -4 |