**II. Аппроксимация - индивидуальное задание.**

По данным таблицы построить график функции в узловых точках. Применяя линейную и полиномиальную аппроксимации, получить эмпирические формулы для функции *у*=*f*(*x*), заданной в табличном виде. Оценить погрешность эмпирических формул.

Использовать два способа обращения к диалоговым окнам, предназначенным для аппроксимации функций (***function fitting***):

* через окно построенного графика (панель инструментов графика >Tools> Basic Fitting);
* через основное окно MATLAB (верхняя панель >APPS>Curve Fitting)

Таблица

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** | xi | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| yi | -0.71 | -0.01 | 0.51 | 0.82 | 0.88 | 0.51 | 0.49 |
| **2.** | xi | -6.6 | -5.38 | -3.25 | -1.76 | 2.21 | 3.6 | 4.5 |
| yi | 2.89 | 1.41 | 0.29 | -0.41 | -0.69 | -0.7 | 1.2 |
| **3.** | xi | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| yi | -0.31 | 0.9 | 2.11 | 3.3 | 4.51 | 5.73 | 6.93 |
| **4.** | xi | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
| yi | 7.1 | 3.9 | 1.1 | 0.8 | 3.1 | 4.5 | 5.3 |
| **5.** | xi | -2 | -1 | -0.5 | 0 | 1.5 | 2 | 3.5 |
| yi | 5.9 | 2.8 | 2.1 | 3.2 | 6.1 | 7.6 | 4.3 |
| **6.** | xi | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| yi | 3.1 | 0.9 | 0.9 | 2.8 | 7.1 | 6.5 | 4.1 |
| **7.** | xi | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| yi | 10.0 | 7.5 | 5.5 | 4.0 | 3.0 | 2.0 | 2.24 |
| **8.** | xi | -2 | -1 | 0 | 1.5 | 2.3 | 2.6 | 2.9 |
| yi | 4.2 | 5.6 | 6.8 | 7.2 | 9.4 | 10.5 | 11.8 |
| **9.** | xi | 10.0 | 12.0 | 13.0 | 15.0 | 18.0 | 20.0 | 21.0 |
| yi | 0.66 | 0.89 | 1.24 | 1.36 | 1.56 | 1.76 | 1.92 |
| **10.** | xi | 22.0 | 24.0 | 27.0 | 30.0 | 31.0 | 35.0 | 40.0 |
| yi | 1.24 | 1.37 | 1.46 | 1.26 | 1.66 | 1.84 | 1.99 |
| **11.** | xi | -7.0 | -6.0 | -5.0 | -4.0 | -3.0 | -2.0 | -1.0 |
| yi | 22.6 | 24.7 | 25.6 | 24.6 | 23.5 | 21.8 | 19.3 |
| **12.** | xi | -25.0 | -23.0 | -21.0 | -18.0 | -17.2 | -15.4 | -14.0 |
| yi | 0.76 | 0.74 | 0.61 | 0.58 | 0.84 | 0.92 | 1.22 |
| **13.** | xi | -4.0 | -3.0 | -2.0 | -1.0 | 0.0 | 1.0 | 2.0 |
| yi | 1.71 | 1.56 | 1.24 | 1.36 | 1.78 | 2.21 | 4.31 |
| **14.** | xi | -22.0 | -20.0 | -18.0 | -16.0 | -14.0 | -12.0 | -10.0 |
| yi | -2.26 | -1.84 | -1.92 | -1.76 | -1.56 | -1.64 | -1.34 |
| **15.** | xi | 23.0 | 24.0 | 25.0 | 26.0 | 27.0 | 28.0 | 29.0 |
| yi | 1.26 | 1.37 | 1.44 | 1.56 | 1.15 | 1.28 | 1.06 |
| **16.** | xi | 30.0 | 33.0 | 35.0 | 37.0 | 39.0 | 41.0 | 43.0 |
| yi | -2.6 | -3.7 | -2.5 | -4.3 | -2.3 | -5.6 | -1.9 |
| **17.** | xi | 44.0 | 45.0 | 46.0 | 47.0 | 48.0 | 49.0 | 50.0 |
| yi | 2.24 | 3.46 | 5.36 | 1.89 | 1.76 | 1.54 | 2.12 |
| **18.** | xi | 52.0 | 54.0 | 56.0 | 58.0 | 60.0 | 62.0 | 64.0 |
| yi | -1.28 | -1.33 | -1.44 | -1.67 | -1.77 | -2.81 | -2.16 |
| **19.** | xi | 2.2 | 2.6 | 3.0 | 3.4 | 3.8 | 4.2 | 4.6 |
| yi | 1.88 | 1.65 | 1.61 | 1.73 | 1.56 | 1.24 | 1.99 |
| **20.** | xi | 5.1 | 5.3 | 5.5 | 5.7 | 5.9 | 6.1 | 6.3 |
| yi | -2.8 | -3.6 | -5.7 | -3.4 | -1.9 | -1.7 | -1.5 |
| **21.** | xi | 7.15 | 7.35 | 7.55 | 7.75 | 7.95 | 8.15 | 8.35 |
| yi | -2.2 | -3.6 | -1.7 | -2.8 | -1.6 | -4.5 | -2.2 |
| **22.** | xi | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 |
| yi | 1.48 | 1.16 | 2.08 | 1.96 | 1.81 | 2.31 | 5.61 |
| **23.** | xi | -10.2 | -10.1 | -10.0 | -9.9 | -9.8 | -9.7 | -9.6 |
| yi | -6.5 | -7.8 | -10.2 | -5.4 | -4.6 | -9.5 | -10.3 |
| **24.** | xi | 11.0 | 14.0 | 17.0 | 20.0 | 23.0 | 26.0 | 29.0 |
| yi | 1.2 | 1.6 | 1.9 | 1.1 | 1.16 | 1.24 | 1.36 |
| **25.** | xi | -50.0 | -48.0 | -46.0 | -44.0 | -42.0 | -40.0 | -38.0 |
| yi | 1.23 | 1.32 | 1.57 | 1.19 | 1.16 | 1.10 | 2.28 |
| **26.** | xi | -36.0 | -34.0 | -32.0 | -30.0 | -28.0 | -26.0 | -24.0 |
| yi | 1.1 | 1.3 | 2.1 | 1.9 | 1.7 | 1.5 | 1.8 |
| **27.** | xi | 21.0 | 23.0 | 24.0 | 28.0 | 31.0 | 32.0 | 36.0 |
| yi | 1.24 | 1.37 | 1.56 | 1.64 | 1.84 | 1.26 | 1.14 |
| **28.** | xi | 10.0 | 13.0 | 17.0 | 22.0 | 28.0 | 35.0 | 43.0 |
| yi | 1.21 | 1.36 | 1.51 | 1.84 | 1.06 | 1.21 | 1.36 |
| **29.** | xi | -1.0 | 0.0 | 3.0 | 5.0 | 8.0 | 12.0 | 15.0 |
| yi | -2.1 | -3.6 | 1.2 | -4.3 | 1.8 | 2.6 | -0.2 |
| **30.** | xi | -8.0 | -7.0 | -5.0 | -3.0 | -1.0 | 2.0 | 5.0 |
| yi | 1.36 | 1.88 | 2.45 | -2.1 | -10.2 | -4.4 | 1.16 |