

1 Test 1, wieczorem dopisze reszta tylko fajnie jakby ktoś to potem sformatował

$$n = 2; a = 1; b = 3$$

$$x_0 = 1; x_1 = 2; x_2 = 3$$

$$l_0 = \prod_{k=0; k \neq 0}^2 \frac{x - x_k}{x_0 - x_k} = \frac{x - x_1}{x_0 - x_1} * \frac{x - x_2}{x_0 - x_2} = \frac{x - 2}{-1} * \frac{x - 3}{-2} = \frac{1}{2}x^2 - \frac{5}{2}x + 3$$

$$l_0(x_0) = l_0(1) = 1; l_0(x_1) = l_0(2) = 0; l_0(x_2) = l_0(3) = 0$$

$$l_1 = \prod_{k=0; k \neq 1}^2 \frac{x - x_k}{x_1 - x_k} = \frac{x - x_0}{x_1 - x_0} * \frac{x - x_2}{x_1 - x_2} = \frac{x - 1}{1} * \frac{x - 3}{-1} = -x^2 + 4x - 3$$

$$l_1(x_0) = l_1(1) = 0; l_1(x_1) = l_1(2) = 1; l_1(x_2) = l_1(3) = 0$$

$$l_2 = \prod_{k=0; k \neq 2}^2 \frac{x - x_k}{x_2 - x_k} = \frac{x - x_0}{x_2 - x_0} * \frac{x - x_1}{x_2 - x_1} = \frac{x - 1}{2} * \frac{x - 2}{1} = \frac{1}{2}x^2 - \frac{3}{2}x + 1$$

$$l_2(x_0) = l_2(1) = 0; l_2(x_1) = l_2(2) = 0; l_2(x_2) = l_2(3) = 1$$

$$1 *$$

$$A_0 = 1; A_1 = 4; A_2 = 9$$

$$L(x) = \sum_{i=0}^2 A_i * l_i(x) = 1(\frac{1}{2}x^2 - \frac{5}{2}x + 3) + 4(x^2 + 4x - 3) + 9(\frac{1}{2}x^2 - \frac{3}{2}x + 1) = x^2$$

$$2 *$$

$$A_0 = 2; A_1 = 1; A_2 = 3$$

$$L(x) = \sum_{i=0}^2 A_i * l_i(x) = 2(\frac{1}{2}x^2 - \frac{5}{2}x + 3) + 1(x^2 + 4x - 3) + 3(\frac{1}{2}x^2 - \frac{3}{2}x + 1) = \frac{3}{2}x^2 - \frac{11}{2}x + 6$$

2 Test 2

$$n = 1; a = 1; b = 2$$

$$x_0 = 1; x_1 = 2$$

$$l_0 = \prod_{k=0; k \neq 0}^1 \frac{x - x_k}{x_0 - x_k} = \frac{x - x_1}{x_0 - x_1} = \frac{x - 2}{-1} = -x + 2$$

$$l_0(x_0) = l_0(1) = 1; l_0(x_1) = l_0(2) = 0$$

$$l_1 = \prod_{k=0; k \neq 1}^1 \frac{x - x_k}{x_1 - x_k} = \frac{x - x_0}{x_1 - x_0} = \frac{x - 1}{1} = x - 1$$

$$l_1(x_0) = l_1(1) = 0; l_1(x_1) = l_1(2) = 1$$

1*

$$A_0 = f(x_0) = f(1) = 1; A_1 = f(x_1) = f(2) = 2$$

$$L(x) = \sum_{i=0}^1 A_i * l_i(x) = 1(-x + 2) + 2(x - 1) = x$$

2*

$$A_0 = f(x_0) = f(1) = 0; A_1 = f(x_1) = f(2) = 0$$

$$L(x) = \sum_{i=0}^1 A_i * l_i(x) = 0(-x + 2) + 0(x - 1) = 0$$

3*

$$A_0 = f(x_0) = f(1) = 3; A_1 = f(x_1) = f(2) = 1$$

$$L(x) = \sum_{i=0}^1 A_i * l_i(x) = 3(-x + 2) + 1(x - 1) = -2x + 5$$

3 Test 3

$$n = 3; a =$$

$$x_0 = 0; x_1 = 2; x_2 =$$

$$l_0 = \prod_{k=0; k \neq 0}^3 \frac{x - x_k}{x_0 - x_k} = \frac{x - x_1}{x_0 - x_1} * \frac{x - x_2}{x_0 - x_2} * \frac{x - x_3}{x_0 - x_3} = \frac{x - 2}{-2} * \frac{x - 4}{-4} * \frac{x - 6}{-6} = -\frac{1}{48}x^3 + \frac{1}{4}x^2 -$$

$$l_1 = \prod_{k=0; k \neq 1}^3 \frac{x - x_k}{x_1 - x_k} = \frac{x - x_0}{x_1 - x_0} * \frac{x - x_2}{x_1 - x_2} * \frac{x - x_3}{x_1 - x_3} = \frac{x - 0}{2} * \frac{x - 4}{-2} * \frac{x - 6}{-4} = \frac{1}{16}x^3 - \frac{5}{8}x^2 + \frac{3}{2}x -$$

$$l_2 = \prod_{k=0; k \neq 2}^3 \frac{x - x_k}{x_2 - x_k} = \frac{x - x_0}{x_2 - x_0} * \frac{x - x_1}{x_2 - x_1} * \frac{x - x_3}{x_2 - x_3} = \frac{x - 0}{4} * \frac{x - 2}{2} * \frac{x - 6}{-2} = -\frac{1}{16}x^3 + \frac{3}{4}x^2 - \frac{9}{4}x + \frac{3}{2}$$

$$l_3 = \prod_{k=0; k \neq 3}^3 \frac{x - x_k}{x_3 - x_k} = \frac{x - x_0}{x_3 - x_0} * \frac{x - x_1}{x_3 - x_1} * \frac{x - x_2}{x_3 - x_2} = \frac{x - 0}{6} * \frac{x - 2}{4} * \frac{x - 6}{2} = \frac{1}{48}x^3 - \frac{1}{4}x^2 + \frac{1}{2}x - \frac{1}{6}$$

$$A_0 = f(x_0) = f(0) = 0; A_1 = f(x_1) = f(2) = 0; A_2 = f(x_2) = f(4) = 0; A_3 = f(x_3) =$$

$$L(x) = \sum_{i=0}^3 A_i *$$