

2.

$$x1 = (-1 + x2 + 2x4)/4$$

$$x2 = (x1 + x3 + 2x5)/4$$

$$x3 = (1 + x2 + 2x6)/4$$

$$x4 = (-2 + x5 + x1)/4$$

$$x5 = (1 + x2 + x4 + x6)/4$$

$$x6 = (2 + x3 + x5)/4$$

Jacobi

k	$x1^{(k)}$	$x2^{(k)}$	$x3^{(k)}$	$x4^{(k)}$	$x5^{(k)}$	$x6^{(k)}$
0	0	0	0	0	0	0
1	-0.25	0	0.25	-0.5	0.25	0.5
2	-0.375	0.125	0.5	-0.5	0.25	0.625
3	-0.3438	0.1562	0.5938	-0.5312	0.3125	0.6875

Gauss-seidel

k	$x1^{(k)}$	$x2^{(k)}$	$x3^{(k)}$	$x4^{(k)}$	$x5^{(k)}$	$x6^{(k)}$
0	0	0	0	0	0	0
1	-0.25	-0.0625	0.2344	-0.5625	0.0938	0.582
2	-0.4062	0.0039	0.542	-0.5781	0.252	0.6985
3	-0.3936	0.1631	0.64	-0.5354	0.3315	0.7429

3.

a)

$$f(0,0) = p(0,0) = a_{00}$$

$$f(1,0) = p(1,0) = a_{00} + a_{10} + a_{20} + a_{30}$$

$$f(0,1) = p(0,1) = a_{00} + a_{01} + a_{02} + a_{03}$$

$$f(1,1) = p(1,1) = \sum_{i=0}^3 \sum_{j=0}^3 a_{ij}$$

$$f_x(0,0) = p_x(0,0) = a_{10}$$

$$f_x(1,0) = p_x(1,0) = a_{10} + 2a_{20} + 3a_{30}$$

$$f_x(0,1) = p_x(0,1) = a_{10} + a_{11} + a_{12} + a_{13}$$

$$f_x(1,1) = p_x(1,1) = \sum_{i=1}^3 \sum_{j=0}^3 a_{ij} \cdot i$$

$$f_y(0,0) = p_y(0,0) = a_{01}$$

$$f_y(1,0) = p_y(1,0) = a_{01} + a_{11} + a_{21} + a_{31}$$

$$f_y(0,1) = p_y(0,1) = a_{01} + 2a_{02} + 3a_{03}$$

$$f_y(1,1) = p_y(1,1) = \sum_{i=0}^3 \sum_{j=1}^3 a_{ij} \cdot j$$

$$f_{xy}(0,0) = p_{xy}(0,0) = a_{11}$$

$$f_{xy}(1,0) = p_{xy}(1,0) = a_{11} + 2a_{21} + 3a_{31}$$

$$f_{xy}(0,1) = p_{xy}(0,1) = a_{11} + 2a_{12} + 3a_{13}$$

$$f_{xy}(1,1) = p_{xy}(1,1) = \sum_{i=1}^3 \sum_{j=1}^3 a_{ij} \cdot ij$$

b)