

$$r = \|\vec{x} - \vec{x}_i\|$$

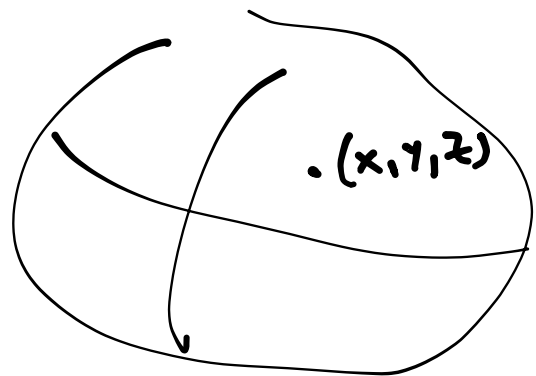
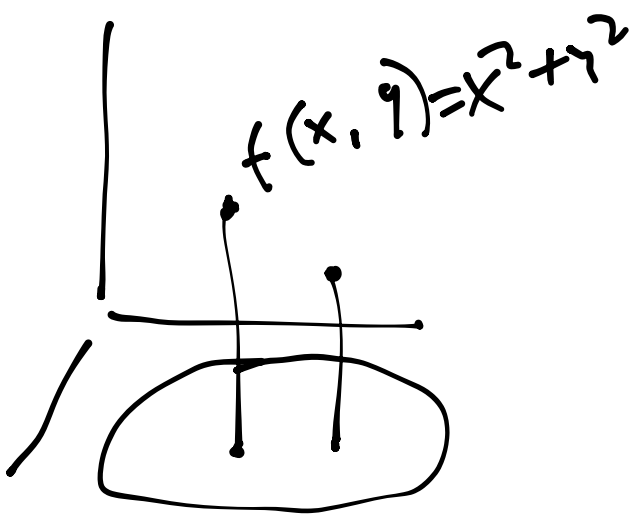
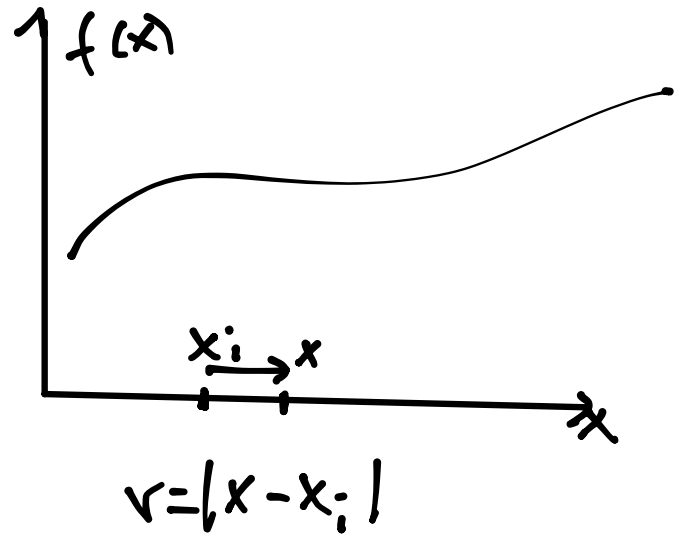
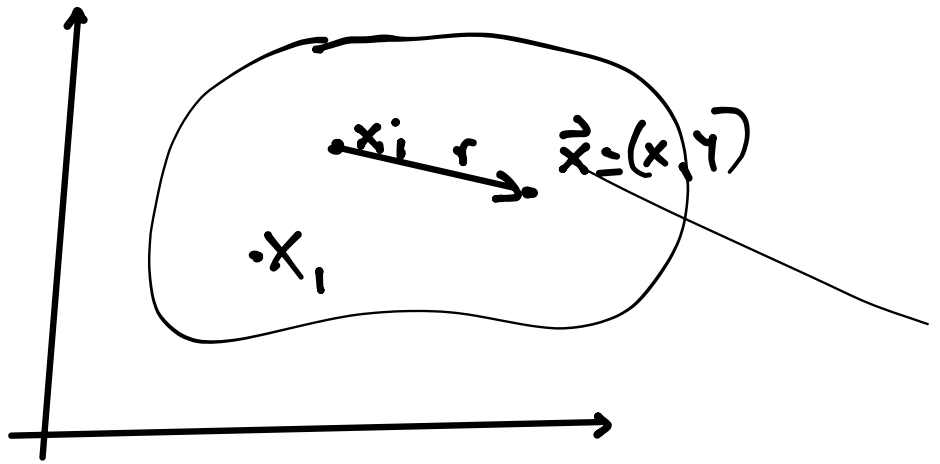
$$f(r) = \sqrt{r^2 + c^2}$$

$$f(r(\vec{x}))$$

$$f_1 \rightarrow f(\|\vec{x} - \vec{x}_1\|)$$

$$f_2 \rightarrow f(\|\vec{x} - \vec{x}_2\|)$$

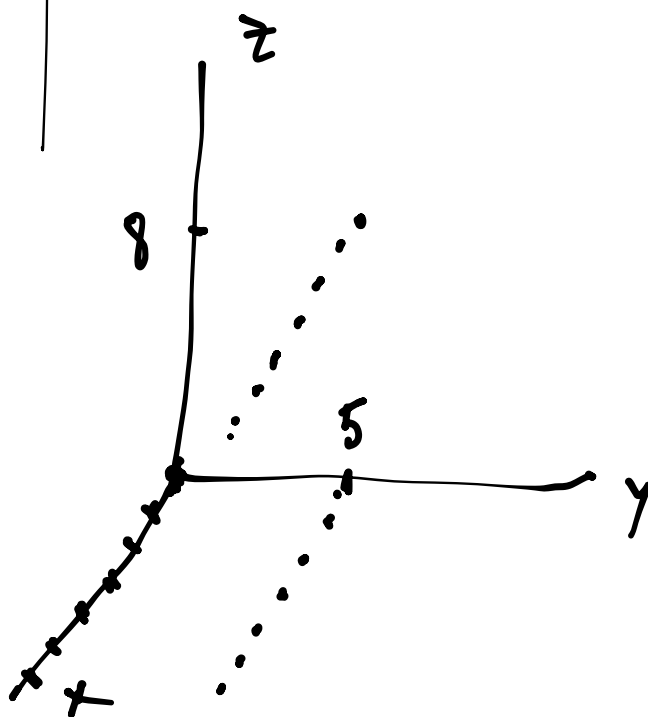
$$f(x, y, z)$$

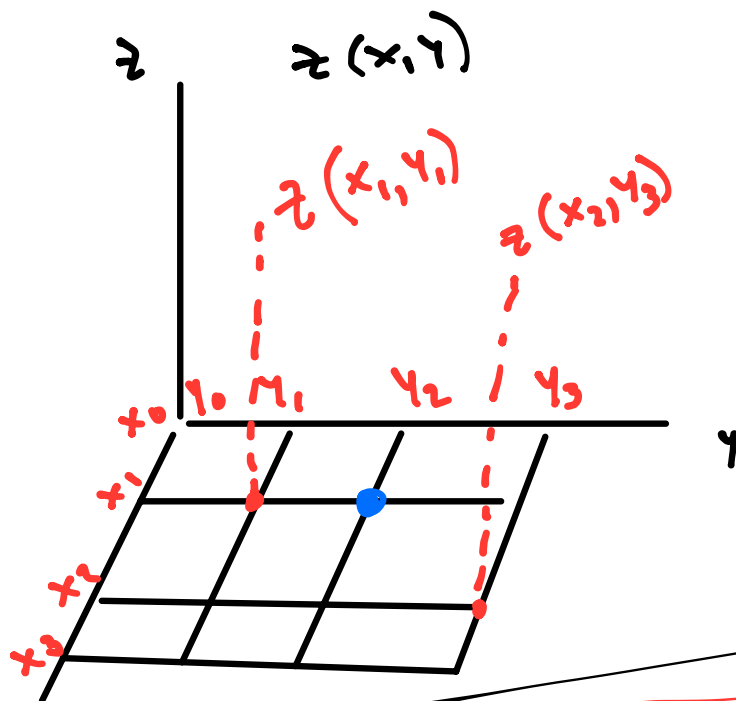


x	y	z	f(x, y, z)
.	.	.	x
.	.	.	x

x	$f(x)$
\cdot	x
\vdots	x
\cdot	x

x	y	z	$f(x, y, z) = f(x, 0, 0)$
0.1	0	0	
0.2	0	0	
0.3	0	0	



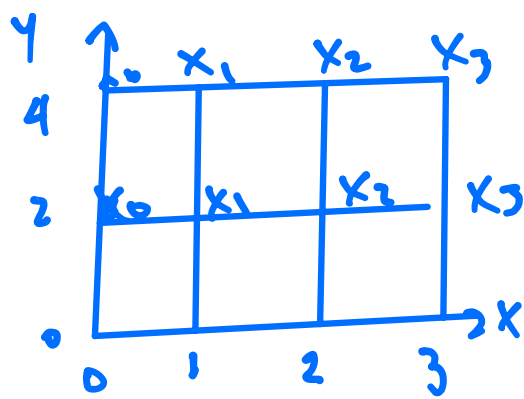


$$X = \begin{pmatrix} x_0 & x_1 & x_2 & x_3 \\ x_0 & x_1 & x_2 & x_3 \\ x_0 & x_1 & x_2 & x_3 \\ x_0 & x_1 & x_2 & x_3 \end{pmatrix}$$

(x_0, y_2)

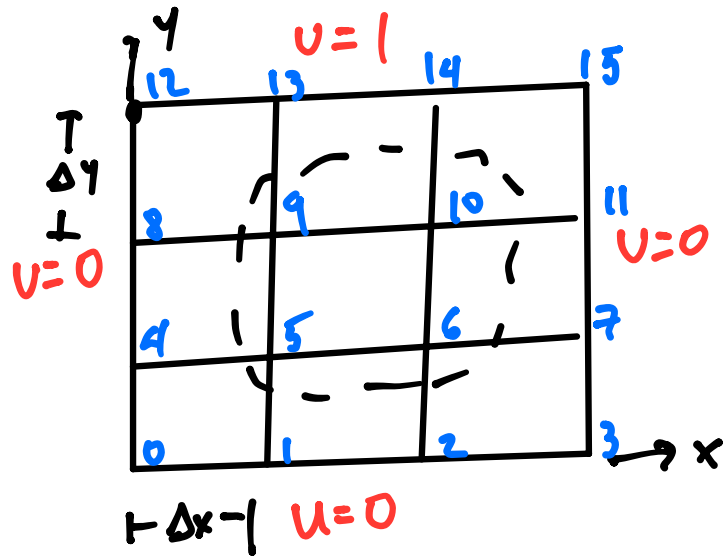
$$Y = \begin{pmatrix} y_0 & y_0 & y_0 & y_0 \\ y_1 & y_1 & y_1 & y_1 \\ y_2 & y_2 & y_2 & y_2 \\ y_3 & y_3 & y_3 & y_3 \end{pmatrix}$$

$$z = \begin{pmatrix} f(x_0, y_0) & f(x_1, y_0) & f(x_2, y_0) & f(x_3, y_0) \\ f(x_0, y_1) & f(x_1, y_1) & f(x_2, y_1) & \dots \end{pmatrix}$$

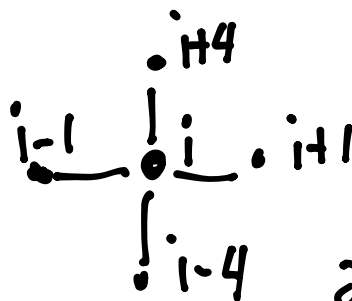


$$\nabla^2 u = 0$$

$$\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$$



$$i = 9, 10, 5, 6$$



$$\frac{\partial^2 u}{\partial x^2} = \frac{u_{i+1} - 2u_i + u_{i-1}}{\Delta x^2}$$

$$\frac{\partial^2 u}{\partial y^2} = \frac{u_{i+4} - 2u_i + u_{i-4}}{\Delta y^2}$$

$$\frac{u_{i+1} - 2u_i + u_{i-1}}{\Delta x^2} + \frac{u_{i+4} - 2u_i + u_{i-4}}{\Delta y^2} = 0$$

$$i = 0, 4, 3 \quad u_i = 0$$

$$i = 12, 13, 14, 15 \quad u_i = 1$$

$$i = 3, 7, 11 \quad u_i = 0$$

$$i=1,2 \quad v_i=0$$