

Studia e rappresenta le linee di livello ottenute intersecando con i piani di equazione $z=0, z=2, z=4$ la superficie data dall'equazione:

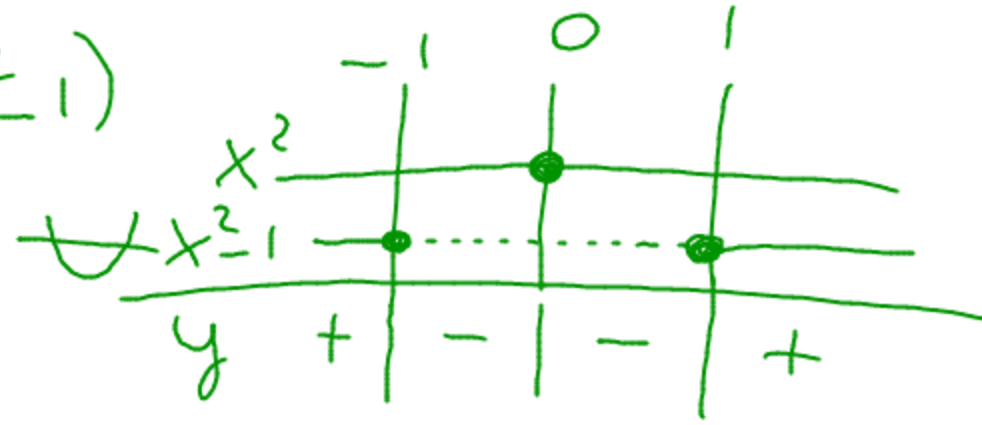
$$z = x^4 - x^2 - y$$

$$D = \mathbb{R} \times \mathbb{R}$$

$$z=0$$

$$y = x^4 - x^2$$

$$y = x^2(x^2 - 1)$$

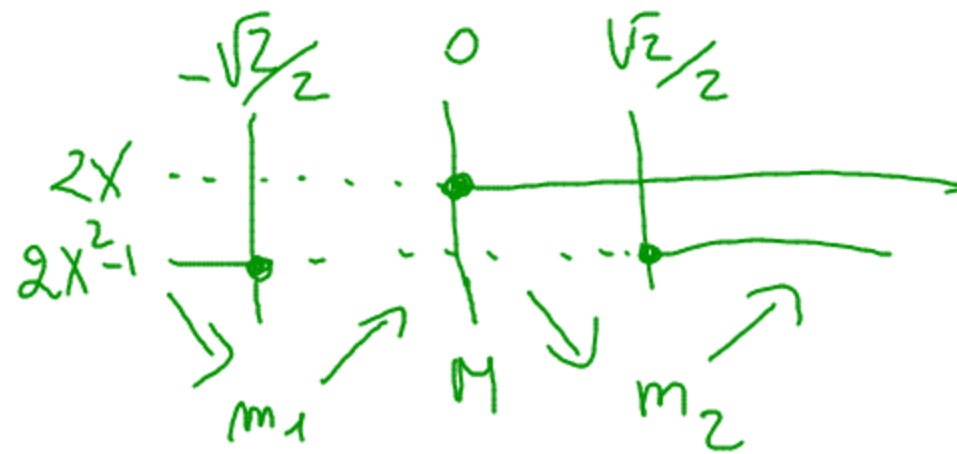


$$y' = 4x^3 - 2x$$

$$y' = 2x(2x^2 - 1)$$

$$x^2 = \frac{1}{2}$$

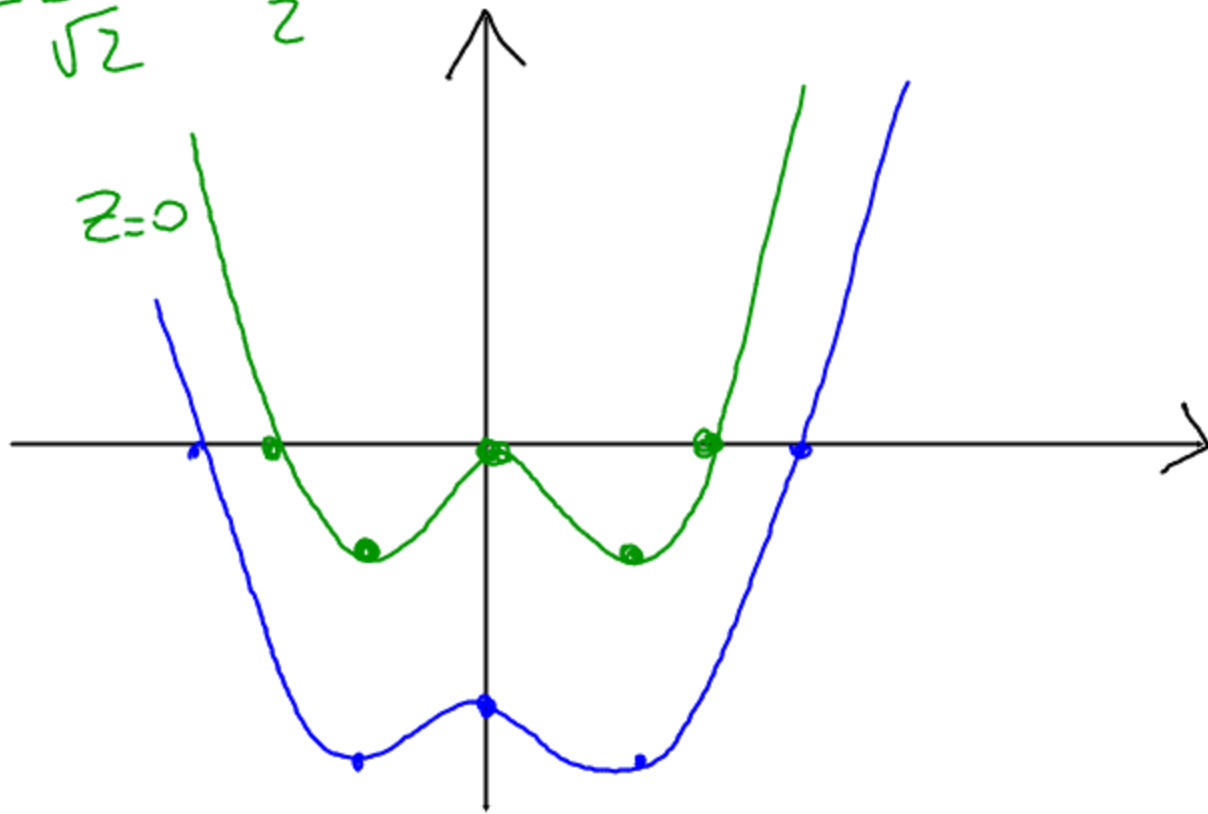
$$x = \pm \frac{1}{\sqrt{2}} = \pm \frac{\sqrt{2}}{2}$$



$$M(0; 0)$$

$$m_1 \left(-\frac{\sqrt{2}}{2}; -\frac{1}{2} \right)$$

$$m_2 \left(\frac{\sqrt{2}}{2}; -\frac{1}{2} \right)$$

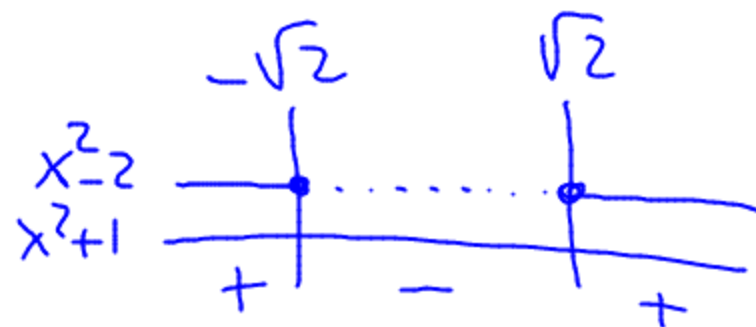


$$z=2$$

$$y = x^4 - x^2 - 2$$

$$y = x^4 - 2x^2 + x^2 - 2$$

$$y = (x^2 - 2)(x^2 + 1)$$



la derivata è identica a quella sulle linee di livello ottenute per $z=0$

point: $M(0; -2)$

$$m_1 \left(-\frac{\sqrt{2}}{2}; -\frac{5}{2} \right)$$

$$m_2 \left(+\frac{\sqrt{2}}{2}; -\frac{5}{2} \right)$$