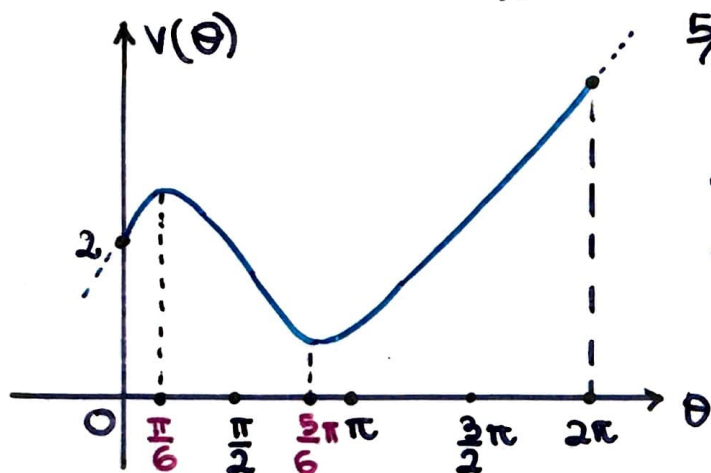


Esercizi

1) $V(\theta) = 2 \cos \theta + \theta$, $\theta \in [0, 2\pi]$

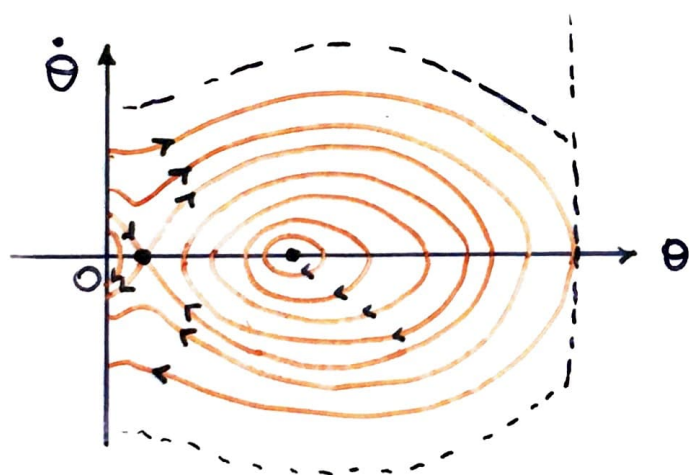
$V'(\theta) = -2 \sin \theta + 1 = 0$ per cui $\sin \theta = \frac{1}{2}$ $\theta = \frac{\pi}{6}$
 $\theta = \frac{5\pi}{6}$

$V'(\theta) > 0$ $\sin \theta < \frac{1}{2} \Rightarrow 0 < \theta < \frac{\pi}{6}$ $\theta = \frac{\pi}{6}$ MAX.
 $\frac{5\pi}{6} < \theta < 2\pi \Rightarrow \theta = \frac{5\pi}{6}$ MIN.



$\theta = 0$ $V = 2$

$\theta = 2\pi$ $V = 2(\pi + 1)$



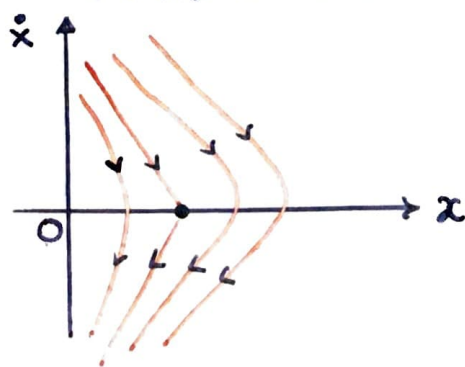
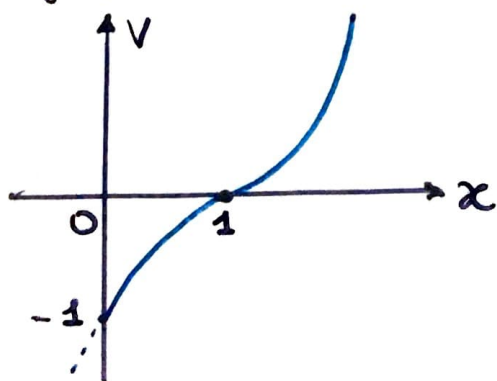
2) $V(x) = x^3 + 3x - 3x^2 - 1$ $x \in [0, +\infty)$

$V(x) = (x-1)^3$

$V'(x) = 3(x-1)^2$ $x=1$

$V''(x) = 6(x-1)$

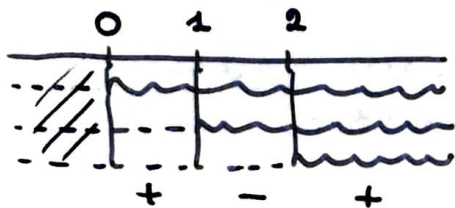
\Rightarrow è un flesso a tangente orizzontale.



$$b) V(x) = (x-1)^4 - 2(x-1)^2 + 1 \quad x \in [0, +\infty)$$

$$V(x) = x^2(x-2)^2 = 0 \quad \text{für } x=0, x=2$$

$$V' = 4x(x-1)(x-2) = 0 \quad \text{für } x=0, x=1, x=2$$



$x=0, x=2$ min.

$x=1$ max.

