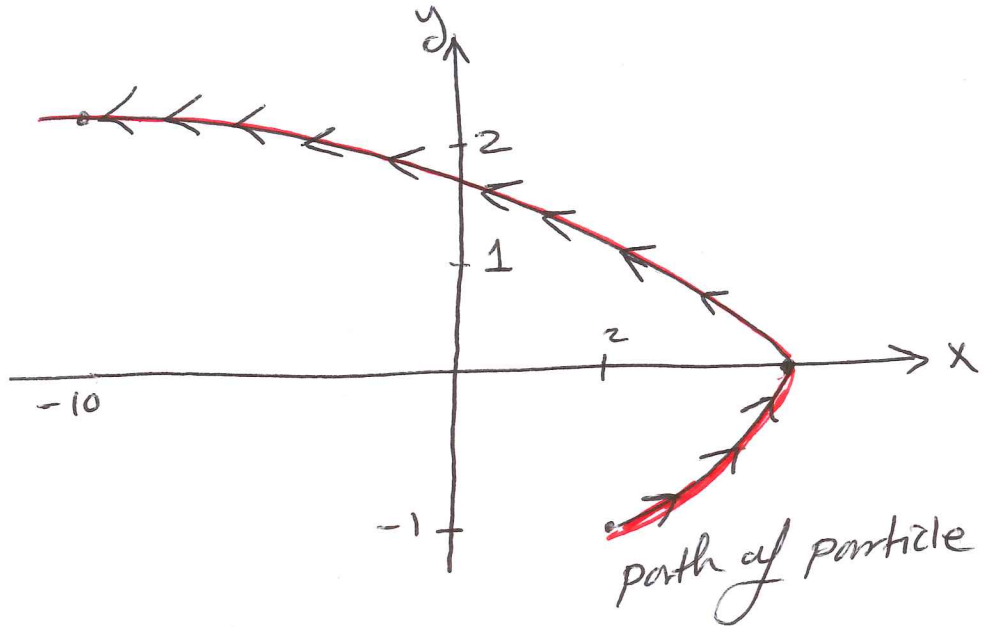


Example ①:  $x = 6 - t^2$ ,  $y = \frac{1}{2}t$ ,  $-2 \leq t \leq 4$

Solution

t	x	y
-2	2	-1
-1	5	-0.5
0	6	0
1	5	0.5
2	2	1
3	-3	1.5
4	-10	2



Example ②:  $x = 2\sin(t)$ ,  $y = 2\cos(t)$ ,  $0 \leq t \leq \frac{\pi}{2}$

Solution:

$$x^2 = 4\sin^2(t)$$

$$y^2 = 4\cos^2(t)$$

$$\Downarrow$$

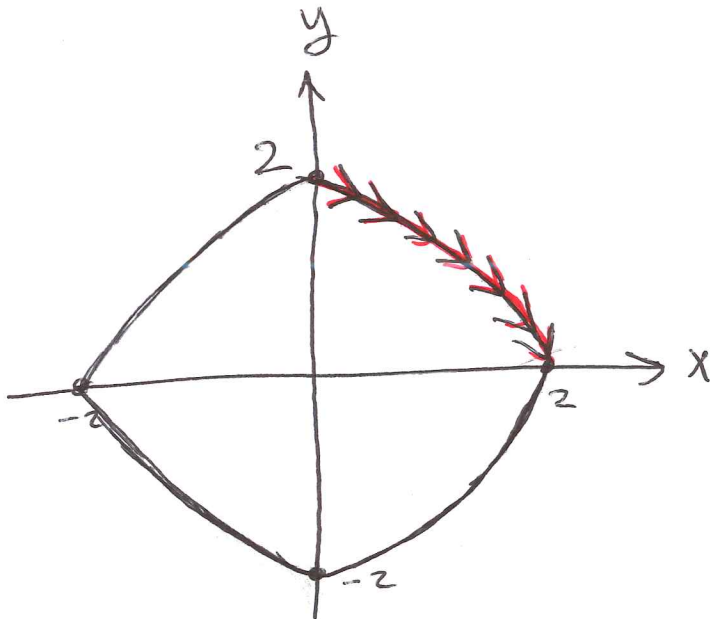
$$x^2 + y^2 = 4\sin^2(t) + 4\cos^2(t)$$

$$\Downarrow$$

$$x^2 + y^2 = 4(\underbrace{\sin^2(t) + \cos^2(t)}_{=1})$$

$$\Downarrow$$

$$\boxed{x^2 + y^2 = 4}$$



Example ③:  $x = 5\cos(t)$ ,  $y = 2\sin(t)$ ,  $0 \leq t \leq 2\pi$

Solution:

$$x = 5\cos(t) \Rightarrow \frac{x}{5} = \cos(t)$$

$$y = 2\sin(t) \Rightarrow \frac{y}{2} = \sin(t)$$

Then, we use trig identity:  $\sin^2(t) + \cos^2(t) = 1$

$$\Rightarrow \left(\frac{x}{5}\right)^2 + \left(\frac{y}{2}\right)^2 = 1$$

$$\Rightarrow \frac{x^2}{25} + \frac{y^2}{4} = 1$$

