

How to move a circle

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Concept

- `patch.center = (x, y)` # 更新圓形的位置座標
- `patch.radius = x/2` # 更新圓形的半徑

Code

```
# -*- coding: utf-8 -*-

import numpy as np
from matplotlib import pyplot as plt
from matplotlib import animation

# 建立一個 fig 寬高為 7 與 6.5
fig = plt.figure()
fig.set_dpi(100)
fig.set_size_inches(7, 6.5)

# 指定 plt Axe-X 範圍: 0 ~ 10,
#      plt Axe-Y 範圍: 0 ~ 10
ax = plt.axes(xlim=(0, 10), ylim=(0, 10))
patch = plt.Circle((5, -5), 0.75, fc='y')

# 初始
def init():
    patch.center = (5, 5) # 設定圓的中心
    ax.add_patch(patch) # 把圓加入繪圖的行列
    return patch,

def update(i):
    x, y = patch.center # 取得圓形的中心 x, y 座標
    x = 5 + 3 * np.sin(np.radians(i)) # 計算新的 x 座標
    y = 5 + 3 * np.cos(np.radians(i)) # 計算新的 y 座標
    patch.center = (x, y) # 更新圓形的位置座標
    patch.radius = x/2 # 更新圓形的半徑
```

```
    return patch,  
  
    anim = animation.FuncAnimation(fig, update,  
                                   init_func=init,  
                                   frames=360,  
                                   interval=20,  
                                   blit=True)  
  
plt.show()
```

Reference

- <https://nickcharlton.net/posts/drawing-animating-shapes-matplotlib.html>