

TP21 En Python

Formes géométriques (cinq cercles)

Allumer l'ordinateur et connectez-vous en utilisant votre login et votre mot de passe puis lancer « Python en ligne : <https://www.codabrainy.com/python-compiler/> »

Activité

Le but est de tracer un cercle en Python :

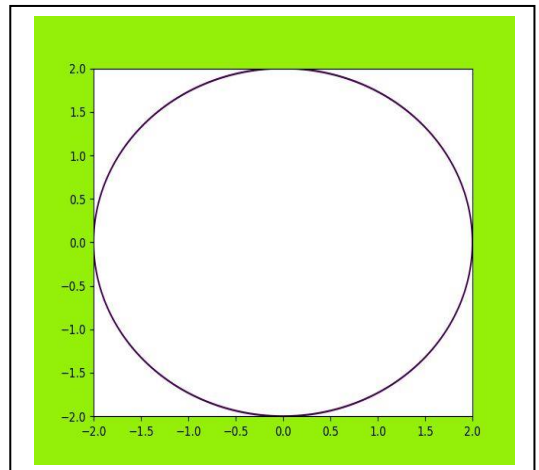
Soient les cercles d'équations suivants :

- 1- $X^2 + Y^2 = 4$: équation d'un cercle de centre (0 ; 0) et de rayon $r = 2$.
- 2- $X^2 + (Y+2)^2 = 4$: équation d'un cercle de centre (0 ; -2) et de rayon $r = 2$.
- 3- $X^2 + (Y-2)^2 = 4$: équation d'un cercle de centre (0 ; 2) et de rayon $r = 2$.
- 4- $(X+2)^2 + Y^2 = 4$: équation d'un cercle de centre (-2 ; 0) et de rayon $r = 2$.
- 5- $(X-2)^2 + Y^2 = 4$: équation d'un cercle de centre (2 ; 0) et de rayon $r = 2$.

Algorithme1 :

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-2, 2, 100)
y = np.linspace(-2, 2, 100)
X, Y = np.meshgrid(x,y)
plt.figure(facecolor='#94F008')
A = X**2 + Y**2 - 4
plt.contour(X,Y,A,[0])
plt.show()
```

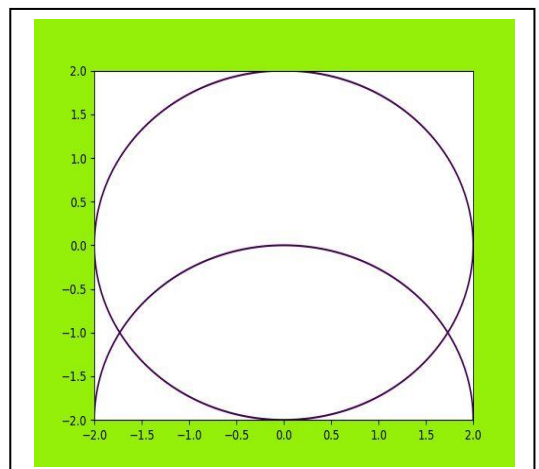
View the result



Algorithme2 :

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-2, 2, 100)
y = np.linspace(-2, 2, 100)
X, Y = np.meshgrid(x,y)
plt.figure(facecolor='#94F008')
A = X**2 + Y**2 - 4
plt.contour(X,Y,A,[0])
B = X**2 + (Y+2)**2 - 4
plt.contour(X,Y,B,[0])
plt.show()
```

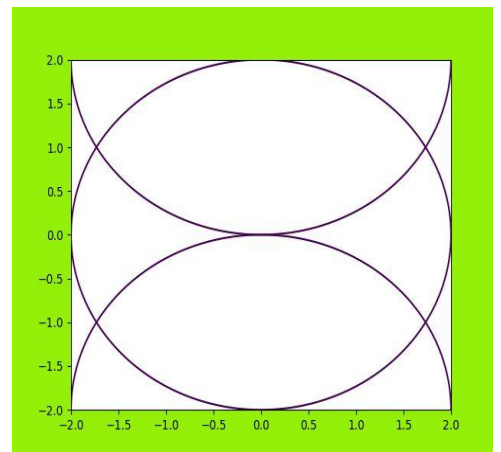
View the result



Algorithme3 :

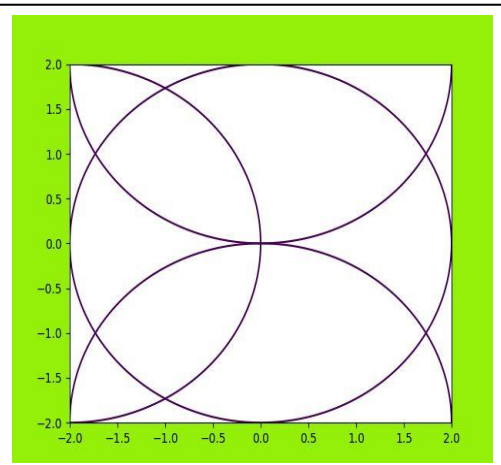
```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-2, 2, 100)
y = np.linspace(-2, 2, 100)
X, Y = np.meshgrid(x,y)
plt.figure(facecolor='#94F008')
A = X**2 + Y**2 - 4
plt.contour(X,Y,A,[0])
B = X**2 + (Y+2)**2 - 4
plt.contour(X,Y,B,[0])
C = X**2 + (Y-2)**2 - 4
plt.contour(X,Y,C,[0])
plt.show()
```

View the result

**Algorithme4 :**

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-2, 2, 100)
y = np.linspace(-2, 2, 100)
X, Y = np.meshgrid(x,y)
plt.figure(facecolor='#94F008')
A = X**2 + Y**2 - 4
plt.contour(X,Y,A,[0])
B = X**2 + (Y+2)**2 - 4
plt.contour(X,Y,B,[0])
C = X**2 + (Y-2)**2 - 4
plt.contour(X,Y,C,[0])
D = (X+2)**2 + Y**2 - 4
plt.contour(X,Y,D,[0])
plt.show()
```

View the result

**Algorithme5 :**

```
import numpy as np
import matplotlib.pyplot as plt
x = np.linspace(-2, 2, 100)
y = np.linspace(-2, 2, 100)
X, Y = np.meshgrid(x,y)
plt.figure(facecolor='#94F008')
A = X**2 + Y**2 - 4
plt.contour(X,Y,A,[0])
B = X**2 + (Y+2)**2 - 4
plt.contour(X,Y,B,[0])
C = X**2 + (Y-2)**2 - 4
plt.contour(X,Y,C,[0])
D = (X+2)**2 + Y**2 - 4
plt.contour(X,Y,D,[0])
E = (X-2)**2 + Y**2 - 4
plt.contour(X,Y,E,[0])
plt.show()
```

View the result

