

# Lab143 : SciPy Constants

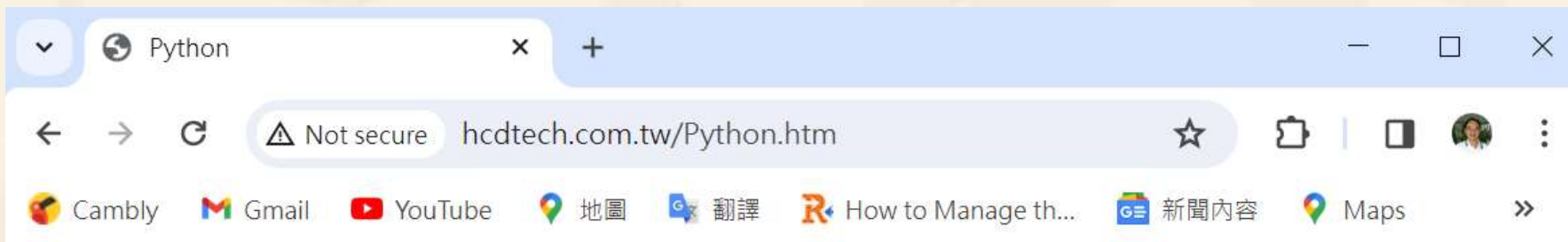
## SciPy 常數

(別怕! 跟著做你就會!)

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請至 [www.hcdtech.com.tw](http://www.hcdtech.com.tw) 下載教材



<http://www.hcdtech.com.tw/Python.htm>



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所有的考卷都可以考100分，是我們自己錯過了！

## 學習秘訣=發問+練習

考卷發下去，時間到了收回來，如果沒有考到100分，這很正常。重點來了，不會的可以問，問完了練習，準備好了考卷再發下去。第二次還是沒有考到100分，這也很正常。沒關係，再來一次，不會的可以問，問完了練習，準備好了考卷第三次再發下去，.....，考到第N次如果還是沒有考到100分。沒關係，再來，不會的可以問，問完了練習，N+1次、N+2次、.....，你們都很聰明，知道我在說什麼，到最後考卷一定可以考100分！看懂了妳/你就會知道，原來學習的秘訣就是發問和練習！今天開始不懂就問，問完了練習，明年的妳/你肯定不一樣！



# 學習如何學習！

1

1 2

1 2 3

.....

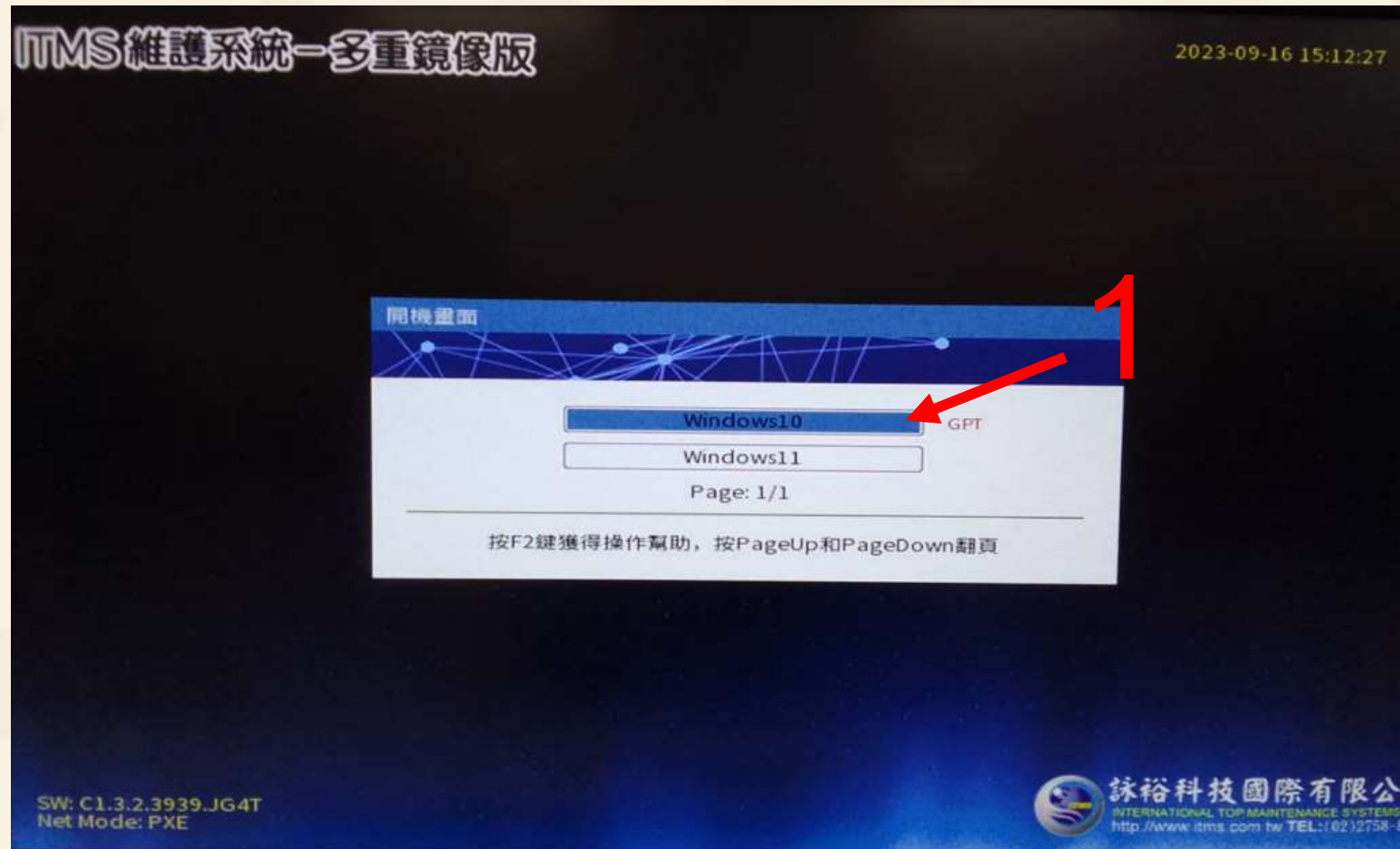
1 2 3 4 5 6 7 8 9 10

## 金字塔念書法



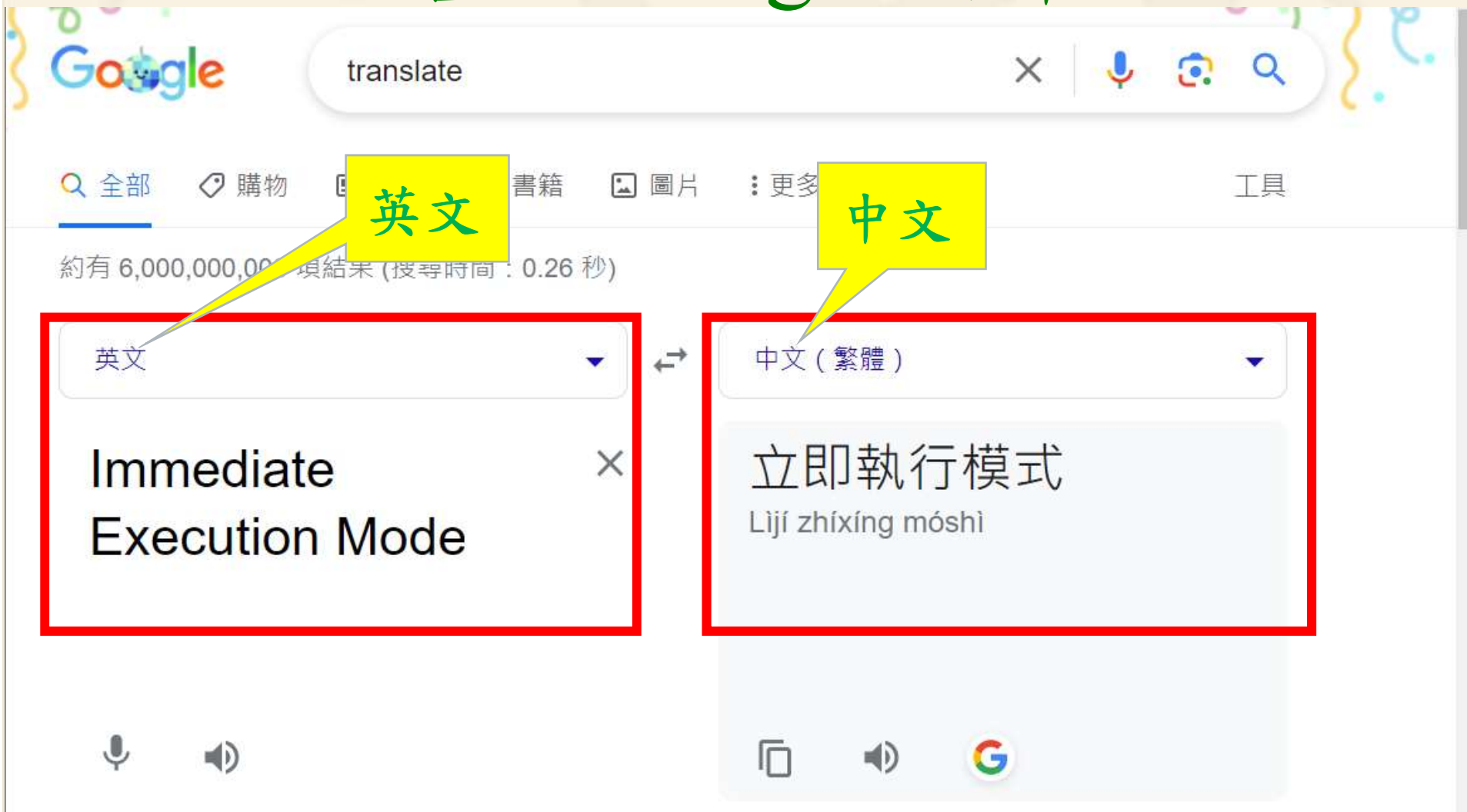
如果一本書有10個章節！先看第1章，在看第2章之前再把第1章看一遍，在看第3章之前再把第1, 2章看一遍，.....，等看到第10章的時候，第1, 2, 3, 4章恐怕已經背起來了！我稱這種念書法為金字塔念書法，今天開始照著做，明年的妳/你肯定不一樣！

# 請使用 Windows 10



## 1. 選用 Windows 10.

# 善用 Google 翻譯





# 請先開啟網頁閱讀

請用善用 Google 翻譯 讀懂 網頁 內容

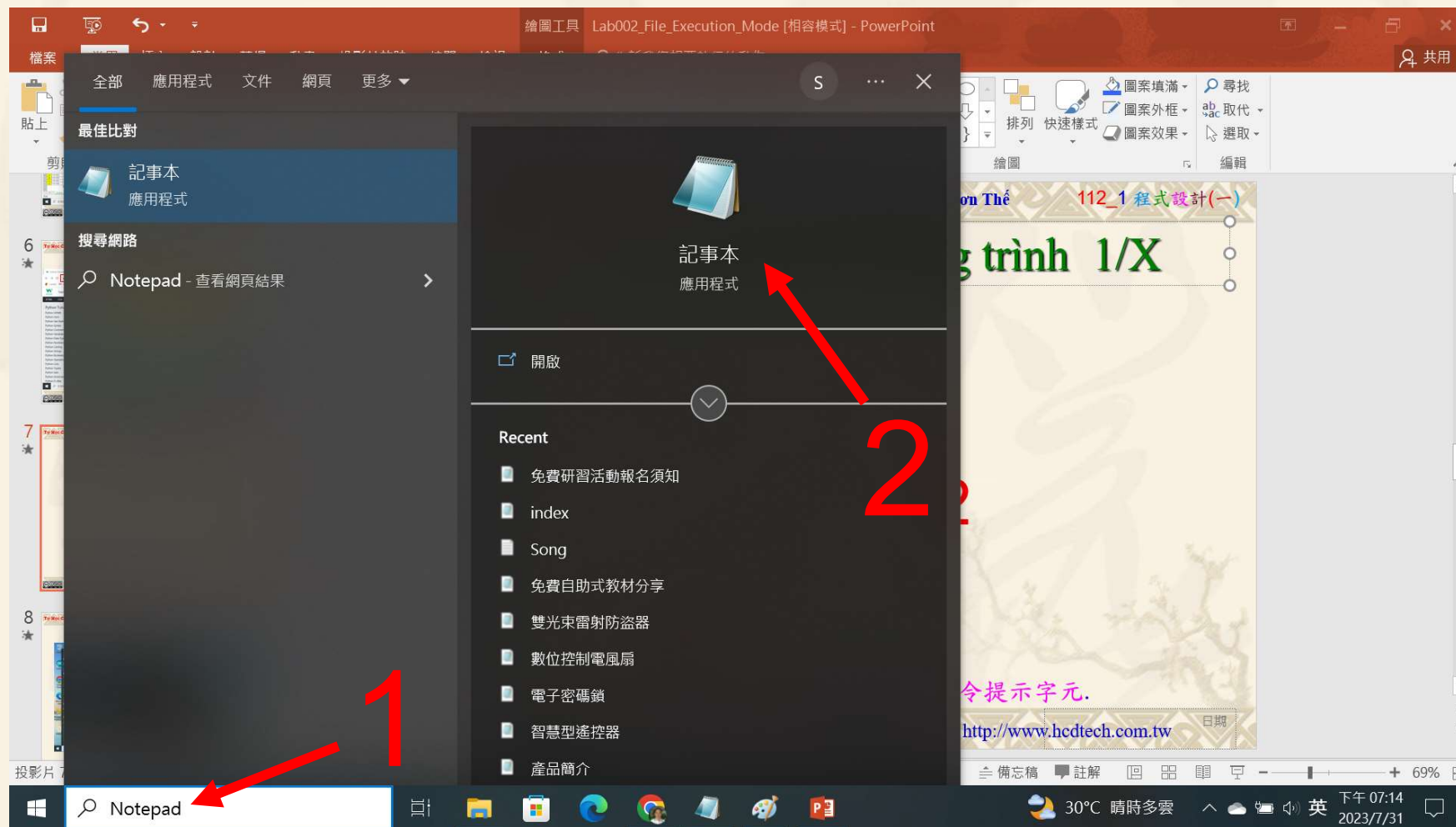
SciPy Constants

## Constants in SciPy

As SciPy is more focused on scientific implementations, it provides many built-in scientific constants.

These constants can be helpful when you are working with Data Science.

# 建立程式文件 1/4



1. 鍵盤輸入Notepad. 2. 用滑鼠點選記事本.



# 建立程式文件 2/4

```

*未命名 - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
print("P11211XXX practices Lab143.")

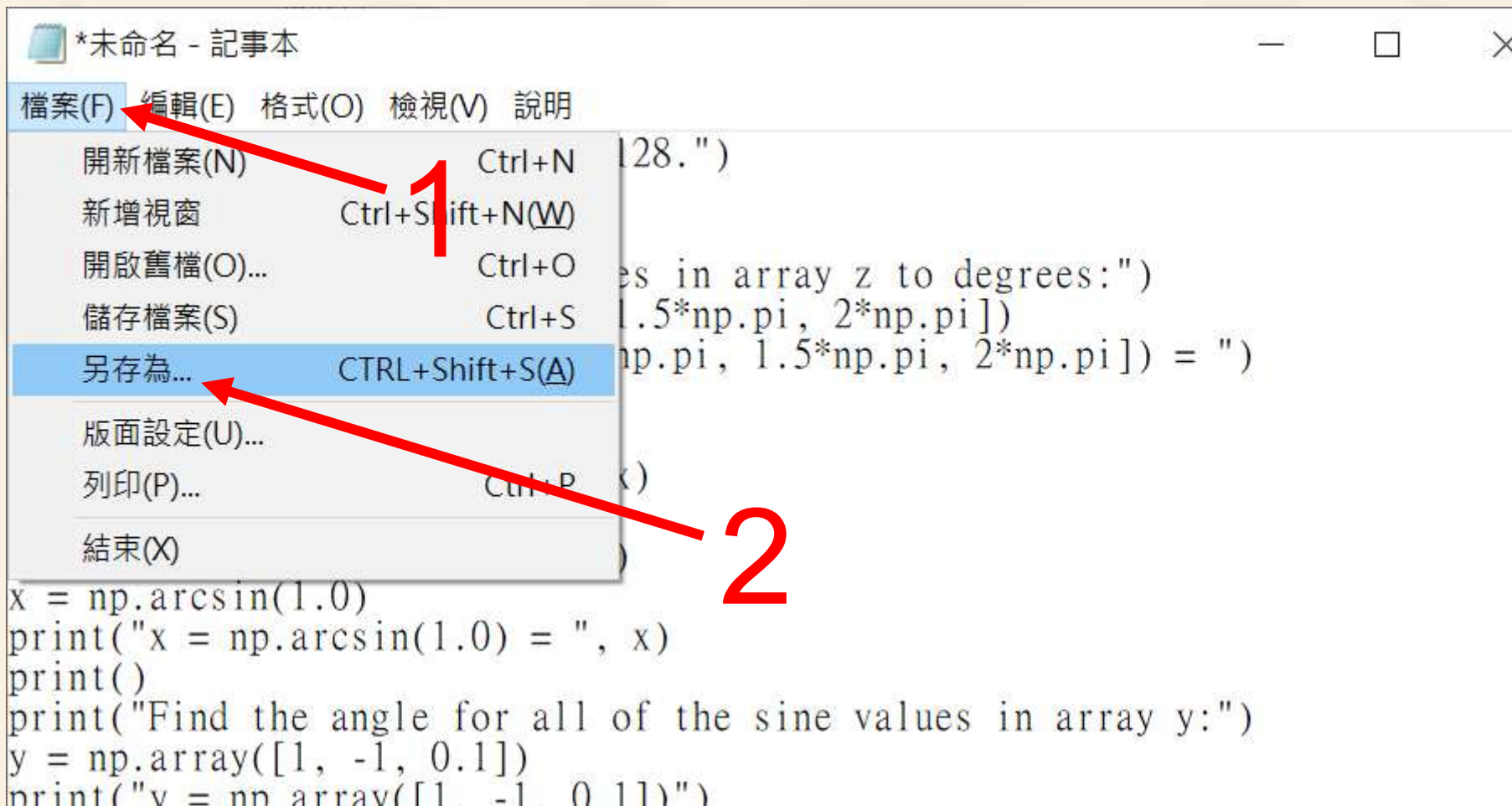
from scipy import constants
print("print(constants.pi) = ", constants.pi)
print("print(constants.giga) = ", constants.giga)
print("print(constants.mega) = ", constants.mega)
print("print(constants.kilo) = ", constants.kilo)
print("print(constants.milli) = ", constants.milli)
print("print(constants.micro) = ", constants.micro)
print("print(constants.nano) = ", constants.nano)
print("print(constants.kibi) = ", constants.kibi)
print("print(constants.gram) = ", constants.pi, " Kg")
print("print(constants.metric_ton) = ", constants.metric_ton, " Kg")
print("print(constants.lb) = ", constants.lb, " Kg")
print("print(constants.oz) = ", constants.oz, " Kg")
print("print(constants.degree) = ", constants.degree, " radians")
print("print(constants.arcsec) = ", constants.arcsec, " radians")
print("print(constants.minute) = ", constants.minute, " seconds")
print("print(constants.hour) = ", constants.hour, " seconds")
print("print(constants.day) = ", constants.day, " seconds")
print("print(constants.inch) = ", constants.inch, " meters")
print("print(constants.foot) = ", constants.foot, " meters")
print("print(constants.yard) = ", constants.yard, " meters")
print("print(constants.mile) = ", constants.mile, " meters")
print()
    
```

將P11211XXX修改為您的學號



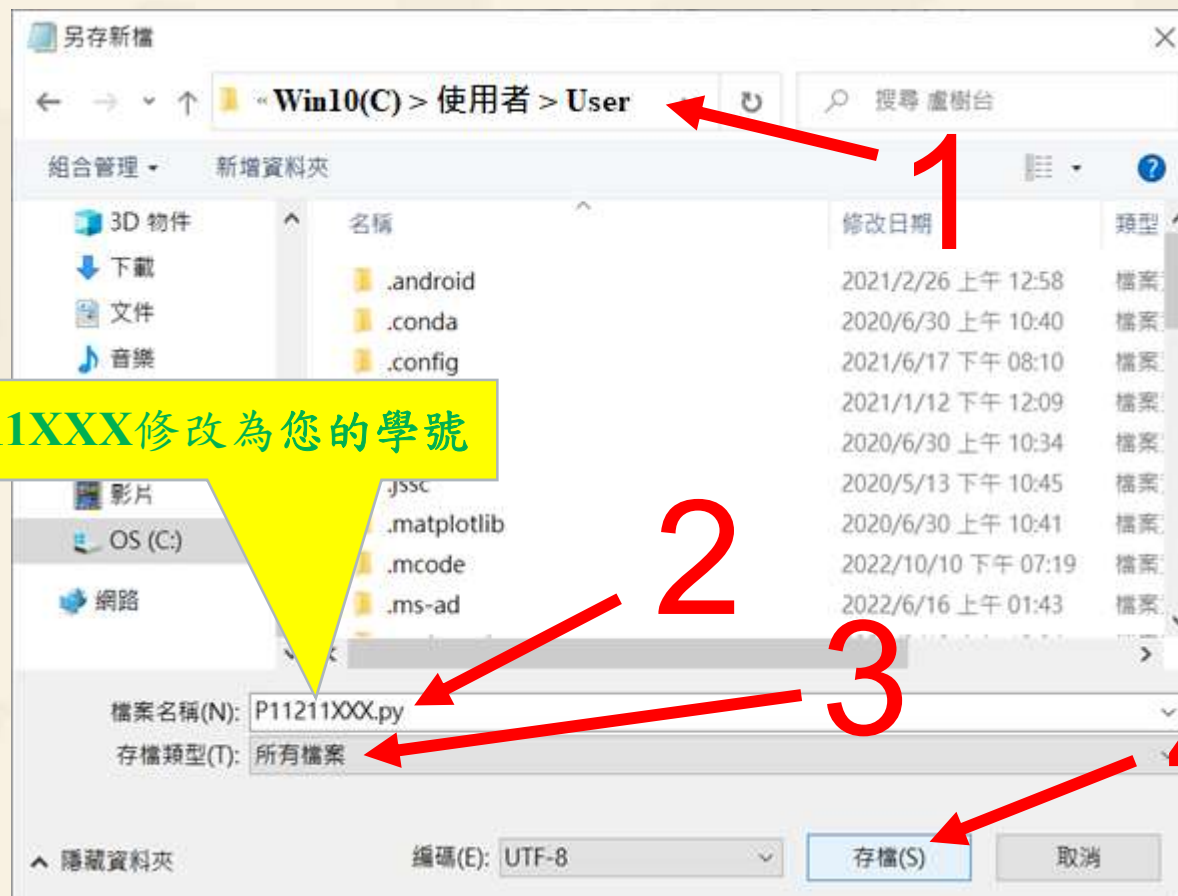
1. 用鍵盤輸入程式代碼.

# 建立程式文件 3/4



1. 用滑鼠點選檔案. 2. 用滑鼠點選另存為....

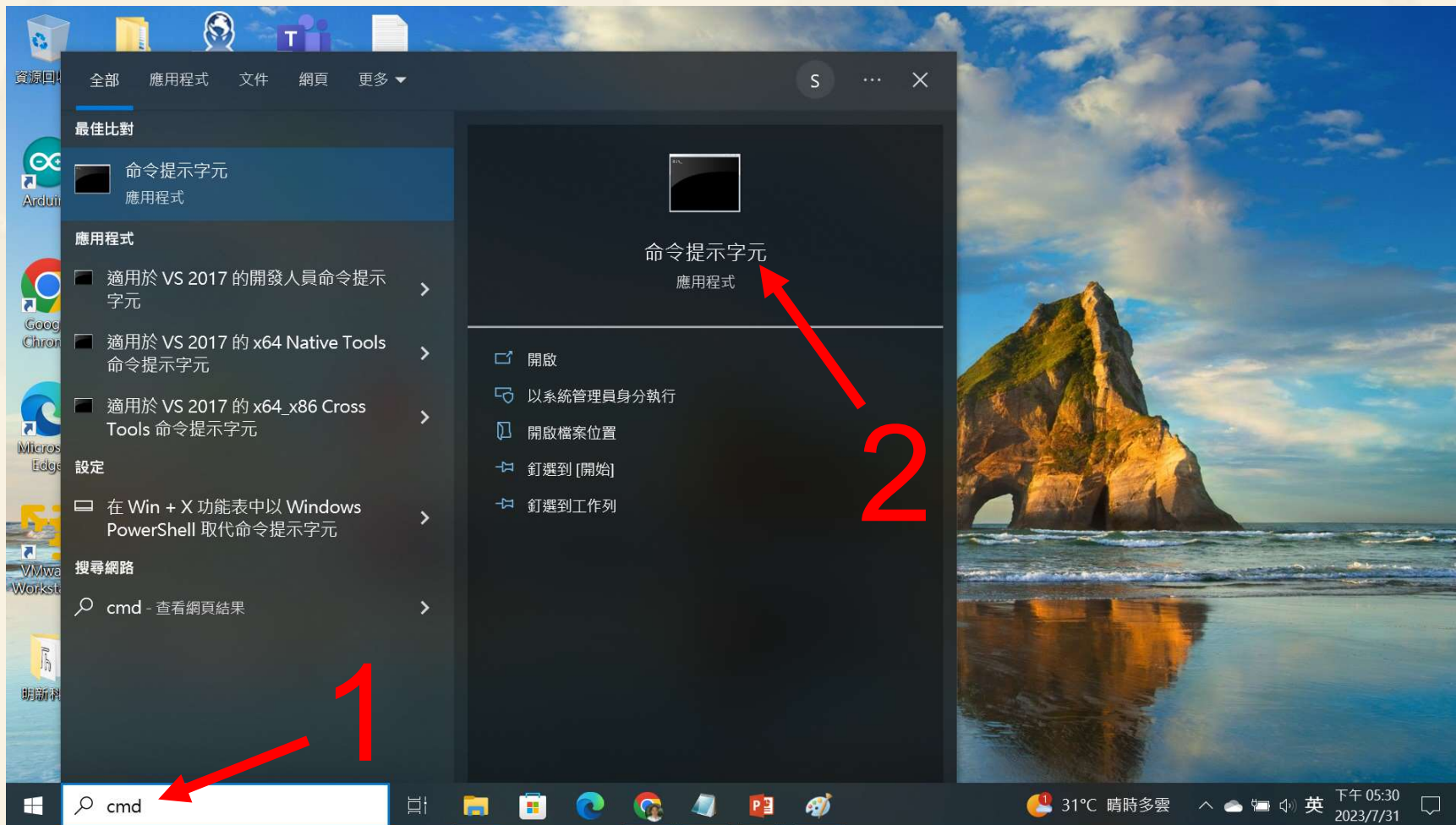
# 建立程式文件 4/4



1. 資料夾 = C:\使用者>User>.
2. 檔案名稱 = P11211XXX.py .
3. 存檔類型(T) = 所有檔案.
4. 用滑鼠點選存檔.

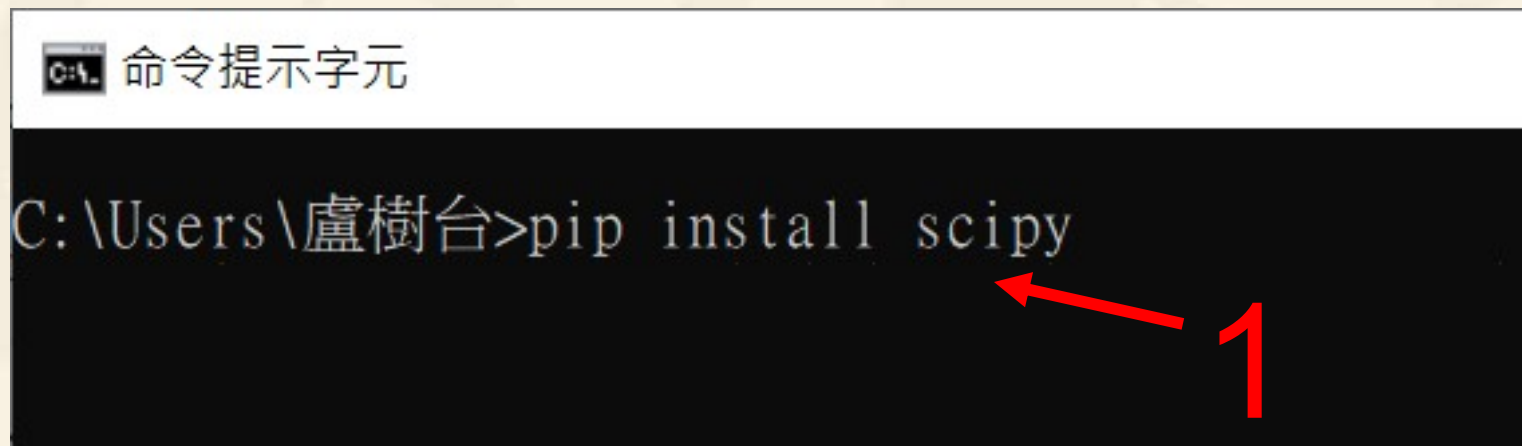


# 檔案執行模式 1/3



1. 鍵盤輸入cmd.
2. 用滑鼠點選命令提示字元.

# 檔案執行模式 2/3



```
C:\Users\盧樹台>pip install scipy
```



1. 用鍵盤輸入pip install scipy.
2. 按一下Enter.



# 檔案執行模式 3/3

```
C:\Users\盧樹台>pip install scipy
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-packages)
WARNING: Ignoring invalid distribution - (c:\python39\lib\site-packages)
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-packages)
WARNING: Ignoring invalid distribution - (c:\python39\lib\site-packages)
Collecting scipy
  Downloading scipy-1.11.4-cp39-cp39-win_amd64.whl (44.3 MB)
    |-----| 44.3 MB 131 kB/s
Requirement already satisfied: numpy<1.28.0,>=1.21.6 in c:\python39\lib\site-packages (from scipy) (1.26.1)
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-packages)
WARNING: Ignoring invalid distribution - (c:\python39\lib\site-packages)
Installing collected packages: scipy
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-packages)
WARNING: Ignoring invalid distribution - (c:\python39\lib\site-packages)
Successfully installed scipy-1.11.4
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-p
WARNING
WARNING
WARNING
WARNING: Ignoring invalid distribution -ip (c:\python39\lib\site-p
WARNING: Ignoring invalid distribution - (c:\python39\lib\site-pac
WARNING: You are using pip version 21.1.1; however, version 23.3.2
You should consider upgrading via the 'c:\python39\python.exe -m p

C:\Users\盧樹台>Python P11211XXX.py
```

將P11211XXX修改為您的學號

1. 用鍵盤輸入Python P11211XXX.py .
2. 按一下Enter.



# Verification Criteria of Lab143

## (Lab143的驗收規範) SciPy常數

**P11211XXX 必需  
更換為您的學號**

Ask the teacher to give you points after completing the illustrated results.

(完成右圖指定成果後請教師在您的座位驗收並讓您簽名加分)

```
C:\Users\盧樹台>Python P11211XXX.py
P11211XXX practices Lab143.
print(constants.pi) = 3.141592653589793
print(constants.giga) = 1000000000.0
print(constants.mega) = 1000000.0
print(constants.kilo) = 1000.0
print(constants.milli) = 0.001
print(constants.micro) = 1e-06
print(constants.nano) = 1e-09
print(constants.kibi) = 1024
print(constants.gram) = 3.141592653589793 Kg
print(constants.metric_ton) = 1000.0 Kg
print(constants.lb) = 0.45359236999999997 Kg
print(constants.oz) = 0.028349523124999998 Kg
print(constants.degree) = 0.017453292519943295 radians
print(constants.arcsec) = 4.84813681109536e-06 radians
print(constants.minute) = 60.0 seconds
print(constants.hour) = 3600.0 seconds
print(constants.day) = 86400.0 seconds
print(constants.inch) = 0.0254 meters
print(constants.foot) = 0.30479999999999996 meters
print(constants.yard) = 0.91439999999999999 meters
print(constants.mile) = 1609.3439999999998 meters
C:\Users\盧樹台>
```

```
P11211XXX - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
print("P11211XXX practices Lab143.")

from scipy import constants
print("print(constants.pi) = ", constants.pi)
print("print(constants.giga) = ", constants.giga)
print("print(constants.mega) = ", constants.mega)
print("print(constants.kilo) = ", constants.kilo)
print("print(constants.milli) = ", constants.milli)
print("print(constants.micro) = ", constants.micro)
print("print(constants.nano) = ", constants.nano)
print("print(constants.kibi) = ", constants.kibi)
print("print(constants.gram) = ", constants.pi, " Kg")
print("print(constants.metric_ton) = ", constants.metric_ton, " Kg")
print("print(constants.lb) = ", constants.lb, " Kg")
print("print(constants.oz) = ", constants.oz, " Kg")
print("print(constants.degree) = ", constants.degree, " radians")
print("print(constants.arcsec) = ", constants.arcsec, " radians")
print("print(constants.minute) = ", constants.minute, " seconds")
print("print(constants.hour) = ", constants.hour, " seconds")
print("print(constants.day) = ", constants.day, " seconds")
print("print(constants.inch) = ", constants.inch, " meters")
print("print(constants.foot) = ", constants.foot, " meters")
print("print(constants.yard) = ", constants.yard, " meters")
print("print(constants.mile) = ", constants.mile, " meters")
print()
```

每一個學生都要做Lab143至少一次!

# 養成良好的工作態度

- 離開實驗室時請整理自己的工作座位，為自己的工作態度加分：
  - (1)滑鼠鍵盤歸位 (2)電腦關機 (3)螢幕關閉電源 (4)椅背靠妥 (5)個人責任區(工作座位及週邊範圍)應整潔，不遺留垃圾紙屑等。

