

## [Exercise]: ตัวเลขและตัวดำเนินการทางคณิตศาสตร์

1. จงเขียนโค้ดเพื่อคำนวณ  $9^2 \times 3.1415 + 2^{0.5} + 9/2$

```
In [3]: (9**(2*3.1415))+(2**0.5)+9/2
```

```
Out[3]: 989710.7375467579
```

2. จงเขียนโค้ดเพื่อแสดงผลลัพธ์ของสมการต่อไปนี้

1.  $2^3 + 9 \times 7$

```
In [4]: (2**3)+9*7
```

```
Out[4]: 71
```

2.  $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5}$

```
In [5]: 1/2+1/3+1/4+1/5
```

```
Out[5]: 1.2833333333333332
```

3.  $\sqrt{3^2 - 4 \times 1 \times 2}$

```
In [6]: ((3**2)-4*1*2)**0.5
```

```
Out[6]: 1.0
```

4.  $\frac{\sqrt{4 \times 3 \times 7}}{2 \times 3}$

```
In [8]: ((4*3*7)**0.5)/(2*3)
```

```
Out[8]: 1.5275252316519465
```

## [Exercise]: โมดูล `math`

1. จงใช้ไลบรารี `math` เขียนโค้ดหาค่าอัตราส่วนทอง (Golden ratio) [WIKI](#) โดยอัตราส่วนทองมีค่าเท่ากับ รากที่สองของ 5 บวกกับ 1 แล้วหารด้วย 2 ซึ่งจะมีค่าประมาณ 1.618

$\frac{1+\sqrt{5}}{2}$

```
In [12]: import math
(1+math.sqrt(5))/2
```

```
Out[12]: 1.618033988749895
```

2. จงใช้ไลบรารี `math` เขียนโค้ดเพื่อแสดงผลลัพธ์ของสมการต่อไปนี้

2.1)  $2^3 + 9 \times 7$

```
In [13]: (2**3)+9*7
```

```
Out[13]: 71
```

2.2)  $\ln\left(\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5}\right)$

```
In [18]: import math
math.log(1/2+1/3+1/4+1/5)
```

```
Out[18]: 0.24946085963158307
```

2.3)  $\sqrt{3^2 - 4 \times 1 \times 2}$

```
In [19]: import math
math.sqrt((3**2)-4*1*2)
```

```
Out[19]: 1.0
```

2.4)  $\left(\frac{\sqrt{4 \times 3 \times 7}}{2 \times 3}\right)^{10}$

```
In [20]: import math
((math.sqrt(4*3*7))/(2*3))**10
```

```
Out[20]: 69.16460905349788
```

3. จงหาพื้นที่ผิวของโลกในหน่วยตารางเมตร กำหนดให้รัศมีของโลกมีค่าเป็น 6,371 km

```
In [21]: import math
4*math.pi*(6371*1000)**2
```

```
Out[21]: 510064471909788.25
```

4. ให้เขียนโค้ดกำหนดค่าให้กับตัวแปร  $n$  (จะกำหนดค่าเป็นเท่าไรก็ได้) แล้วคำนวณสมการ  $\left(1 + \frac{1}{n}\right)^n$  ถามว่า ถ้า  $n$  มีค่าเพิ่มมากขึ้นๆ ผลลัพธ์ของสมการจะมีค่าเท่าไร

[Hint] เปลี่ยนค่า  $n$  ให้เพิ่มมากขึ้น (ด้วยมือ) แล้วดูว่าผลลัพธ์ของสมการจะลู่เข้าสู่อะไร?

$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$

```
In [22]: import math
for n in range(1,1000) :
    x = (1+1/n)**n
    print(x)
#ลู่เข้า 2.718
```

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## [Exercise]: สตริง

1. จงเขียนโค้ดแสดงผลลัพธ์ให้เป็นรูปสามเหลี่ยมแบบนี้ (ระหว่าง \* ในบรรทัดเดียวกัน ไม่มีช่องว่าง)

```
  *
 ***
*****
*****
*****
*****
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```

In [19]: `print(" *\n ***\n *****\n *****\n *****\n *****")`

```
      *
    ***
  *****
*****
*****
*****
```

2. จงเขียนโค้ดเพื่อแสดงผลต่อไปนี้ โดยใช้คำสั่ง `print`

`$$ "\ think\ it's\ sad\ if\ it\ isn't,\ he\ said.$$`

In [20]: `print("\I think is's sad if it isn't,\"he said")`

"I think is's sad if it isn't,"he said

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