

# 第04讲 矩阵的基础知识 扩展练习

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本文档所展示的测试结果，均运行于：Intel Core i7-7700K CPU 4.2GHz

## 1. 【计算题】

编写Python代码，实现以下矩阵的创建，并显示（打印）到屏幕。

$$A = \begin{bmatrix} 1 & 3 & 5 & 7 \\ -2 & -4 & -6 & -8 \end{bmatrix}$$

### • Python实现

```
1 import numpy as np
2 A = ____ (1) ____ ([[1,3,5,7], ____ (2) ____])
3
4 print('A= \n{}'.format(A))
```

### 答案及解析

```
1 (1) np.array
2 (2) [-2,-4,-6,-8]
```

```
1 import numpy as np
2 A = np.array([[1,3,5,7],[-2,-4,-6,-8]])
3
4 print('A= \n{}'.format(A))
```

```
1 A=
2 [[ 1  3  5  7]
3  [-2 -4 -6 -8]]
```

## 2. 【计算题】

给定以下两个矩阵A和B，试求线性组合 $S=1.1A+2.2B$ ，并将结果显示（打印）到屏幕。

$$A = \begin{bmatrix} 1.2 & -0.5 & 3.4 \\ 2.4 & -1.7 & -2.1 \end{bmatrix}, B = \begin{bmatrix} 1.2 & -2 & 0 \\ 0 & -1.8 & -2.3 \end{bmatrix}$$

### • Python实现

```
1 import numpy as np
2 A = np.array([[1.2,-0.5,3.4],[2.4,-1.7,-2.1]])
3 B = ____ (1) ____
4
5 S = ____ (2) ____
6
7 print('S = \n{}'.format(S))
```

## 答案及解析

```
1 (1) np.array([[1.2,-2,0],[0,-1.8,-2.3]])
2 (2) 1.1*A + 2.2*B
```

```
1 import numpy as np
2 A = np.array([[1.2,-0.5,3.4],[2.4,-1.7,-2.1]])
3 B = np.array([[1.2,-2,0],[0,-1.8,-2.3]])
4
5 S = 1.1*A+2.2*B
6
7 print('S = \n{}'.format(S))
```

```
1 S =
2 [[ 3.96 -4.95  3.74]
3  [ 2.64 -5.83 -7.37]]
```