Activity

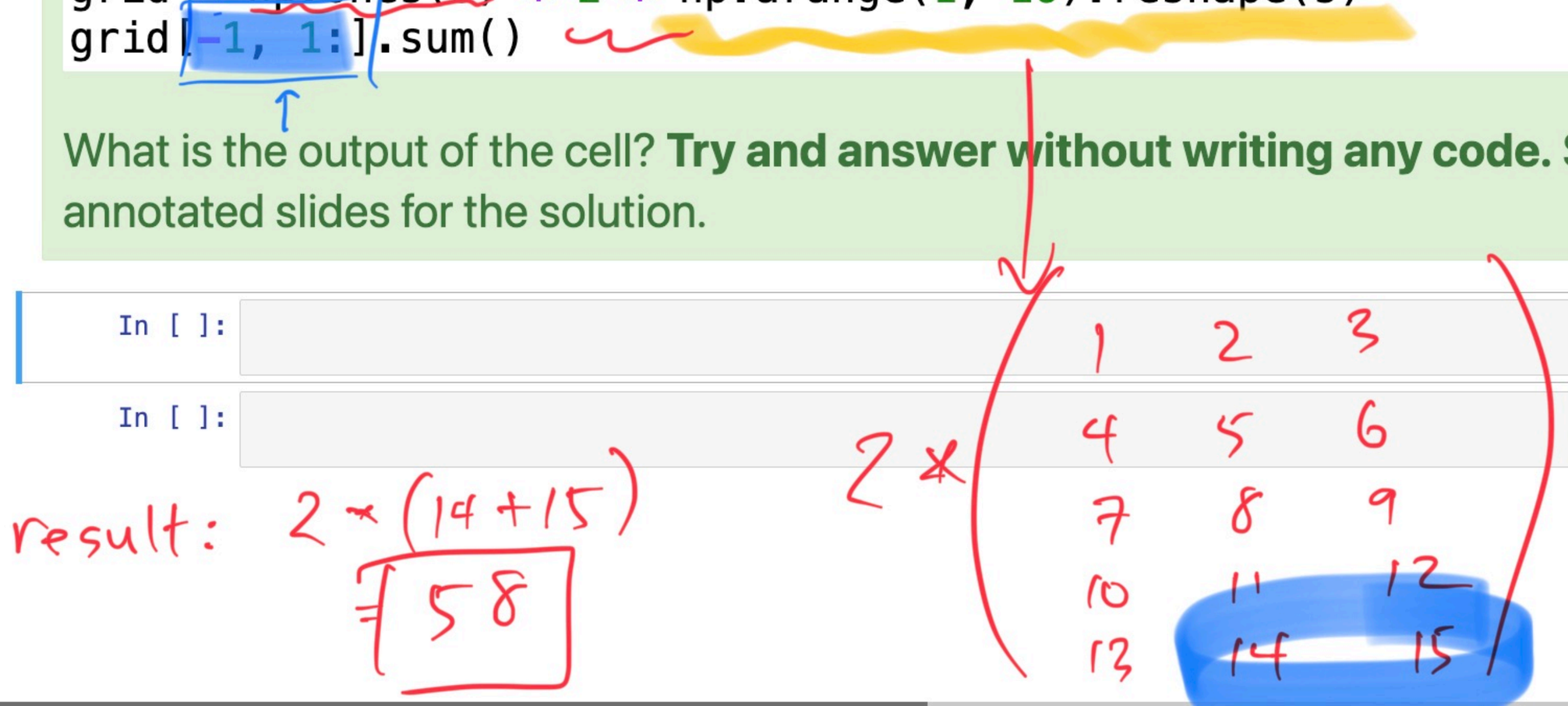
Suppose we run the cell below.

```
s = (5, 3)
grid = np.ones(s) * 2 * np.arange(1, 16).reshape(s)
grid[-1, 1:].sum()
```

What is the output of the cell? **Try and answer without writing any code.** See the annotated slides for the solution.

In [ ]:

In [ ]:



$$A = \begin{bmatrix} 2 & -5 & 1 \\ 0 & 3 & 2 \end{bmatrix} \qquad \vec{x} = \begin{bmatrix} 1 \\ -1 \\ 4 \end{bmatrix} \qquad \vec{y} = \begin{bmatrix} 3 \\ -2 \end{bmatrix}$$

2×3 · 3×1

$$A\vec{x} = \begin{bmatrix} 11 \\ 5 \end{bmatrix}$$

$2 \times 1 + (-5) \times (-1) + 1 \times 4 = 2 + 5 + 4 = 11$

In [141]:
```
A = np.array([[2, -5, 1],
              [0,  3, 2]])
x = np.array([[1],
              [-1],
              [4]])
y = np.array([[3],
              [-2]])
```

- We can use `numpy` to compute various quantities involving A, $\vec{x}$, and $\vec{y}$.

  For instance, what is the result of the product $A\vec{x}$?

  See the annotated slides for the math worked out.

$0 \times 1 + 3 \times (-1) + 2 \times 4 = 0 + -3 + 8 = 5$

In [142]:
```
A @ x
```

Out[142]:
```
array([[11],
       [ 5]])
```