# Balls and Boxes 2

**How many ways are there to put $n$ different balls into $m$ different boxes?**

Boxes (m)

| Different Balls (n) | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 1 | 4 | | | | |
| 3 | 1 | | | | | |
| 4 | 1 | | | | | |
| 5 | 1 | | | | | |
| 6 | 1 | | | | | |

Figure 1:

How many ways are there to put $n$ *identical* balls into $m$ different boxes?

## Boxes (m)

| Identical Balls (n) | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 1 | 3 |   |   |   |   |
| 3 | 1 |   |   |   |   |   |
| 4 | 1 |   |   |   |   |   |
| 5 | 1 |   |   |   |   |   |
| 6 | 1 |   |   |   |   |   |

Figure 2: