

# Problem 20

$n!$  means  $n \times (n - 1) \times \dots \times 3 \times 2 \times 1$

For example,  $10! = 10 \times 9 \times \dots \times 3 \times 2 \times 1 = 3628800$ ,  
and the sum of the digits in the number  $10!$  is  $3 + 6 + 2 + 8 + 8 + 0 + 0 = 27$ .

Find the sum of the digits in the number  $100!$

## Solution

As a sanity check, the answer will certainly be divisible by 9.

```
In[104]:= Total[IntegerDigits[100!]]
```

```
Out[104]= 648
```