



## Problem of the Week

### Problem E

#### Check Your Units

The sum of the first  $n$  positive integers is  $1 + 2 + 3 + \dots + n$ .

We define  $a_n$  to be the units digit of the sum of the first  $n$  positive integers.

For example,

$$1 = 1 \quad \text{and} \quad a_1 = 1,$$

$$1 + 2 = 3 \quad \text{and} \quad a_2 = 3,$$

$$1 + 2 + 3 = 6 \quad \text{and} \quad a_3 = 6,$$

$$1 + 2 + 3 + 4 = 10 \quad \text{and} \quad a_4 = 0,$$

$$1 + 2 + 3 + 4 + 5 = 15 \quad \text{and} \quad a_5 = 5.$$

Thus,  $a_1 + a_2 + a_3 + a_4 + a_5 = 1 + 3 + 6 + 0 + 5 = 15$ .

Determine the smallest value of  $n$  such that  $a_1 + a_2 + a_3 + \dots + a_n \geq 2019$ .

Hundreds  
Tens  
Units  
**472**

