

Goals

- Write a strong inductive proof
- Identify when multiple cases are needed

Sum2(A)

Input : List A of integers

Output: Sum of the elements of A .

```
1  $l = \text{length}(A)$ ;  
   // Base Case  
2 if  $l$  equals 1 then  
3 |   return  $A[1]$ ;  
4 else  
   // Recursive step  
5 |    $mid = l/2$ , rounded to next lowest integer if not an integer;  
6 |   return Sum( $A[1 : mid]$ ) + Sum $A[mid + 1 : l]$ ;  
   //  $A[a : b]$  is a list of  $a$ th to  $b$ th elements of  $A$   
   inclusive.  
7 end
```

Proof By Strong Induction

Prove it takes $n - 1$ breaks to reduce an n -square chocolate bar to n individual pieces.

(Inductive step: Let $k \geq _$. Assume for strong induction that $P(j)$ is true for all j such that _____.)