

Inductive Reasoning

- reasoning based on patterns
- conjecture → conclusion that is reached
 - ↳ need enough data to make conclusion
- counterexample → proves conjecture false

EX → 3, 6, 9, 12, ...
15, 18, 21

EX → Washington, Adams, Jefferson, ...
Madison, Monroe, JQ Adams

EX → O, T, T, F, F, ...
S, S, E, N, T

EX → Sum of 50 odds = $50^2 = 2500$

1	1	= 1	n^2 ($n = \#$ of terms)
2	1 + 3	= 4	
3	1 + 3 + 5	= 9	
4	1 + 3 + 5 + 7	= 16	
5	1 + 3 + 5 + 7 + 9	= 25	

EX → 4, 8, 12, 16, ...
20, 24, 28

EX → Trump, Obama, W. Bush, ...
Clinton, HW Bush, Reagan

EX → O, T, T, F, F, ...
S, S, E, N, T

EX → sum of 2 even #s

$$8 + 6 = 14$$

$$10 + 2 = 12$$

$$4 + 8 = 12$$

} → Even #

EX → Sum of first 20 evens →

1	2	$2 = 1 \cdot 2$
2	$2 + 4$	$6 = 2 \cdot 3$
3	$2 + 4 + 6$	$12 = 3 \cdot 4$
4	$2 + 4 + 6 + 8$	$20 = 4 \cdot 5$
5	$2 + 4 + 6 + 8 + 10$	$30 = 5 \cdot 6$
	⋮	

$$20 \cdot 21 = 420$$

$$\underline{\underline{n(n+1)}}$$

HW: p. 85 → 8-48 mult. 4