

## Section 2.1 - Use Inductive Reasoning

### Goals

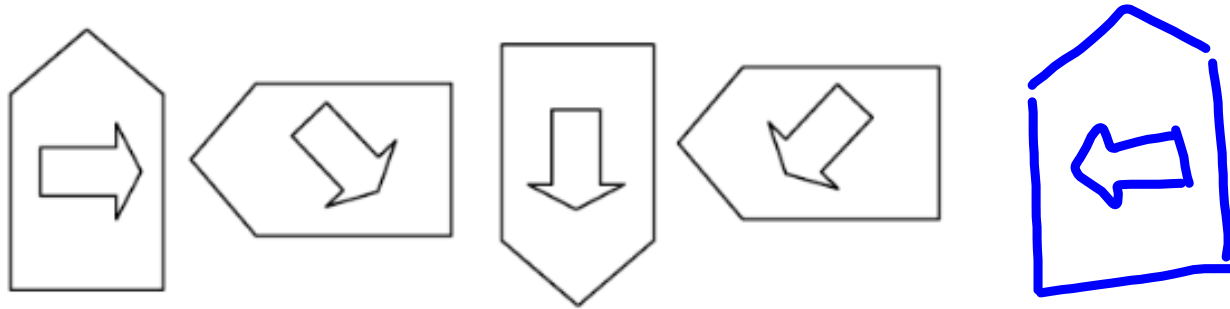
- use inductive reasoning to make conjectures
  - prove some conjectures are false by providing counterexamples
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**Inductive Reasoning:** reasoning based on patterns - using several specific examples to make a plausible prediction

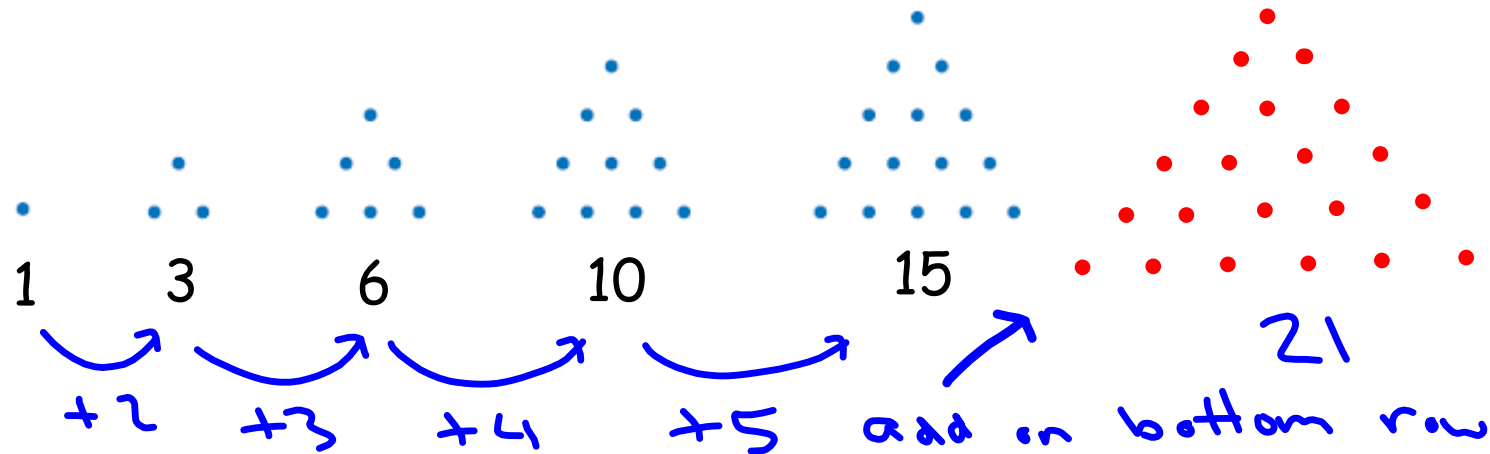
**Conjecture:** an unproven statement based on observations  
- prove a conjecture is false by finding a counterexample

**Counterexample:** an example that shows a conjecture is wrong

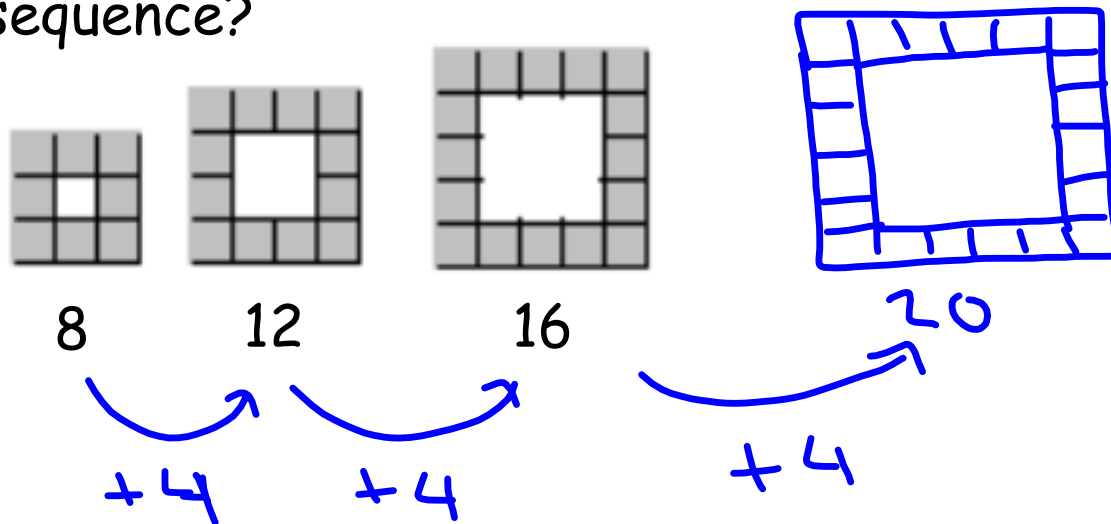
Make a conjecture about the next diagram in each sequence.



How many points in the next diagram in the sequence?



How many shaded squares in the next diagram in the sequence?



Make a conjecture about the next two terms in each sequence.

Are you adding, multiplying, dividing, or subtracting?

$$-3, 1, 5, 9, 13 \dots 17, 21$$

+4 +4 +4

$$2, 5, 10, 17, 26 \dots 37, 50$$

+3 +5 +7 +9 +11 +13

$$1, 3, 9, 27 \dots 81, 243$$

$\times 3$   $\times 3$

$$1, 4, 5, 8, 9 \dots 12, 13$$

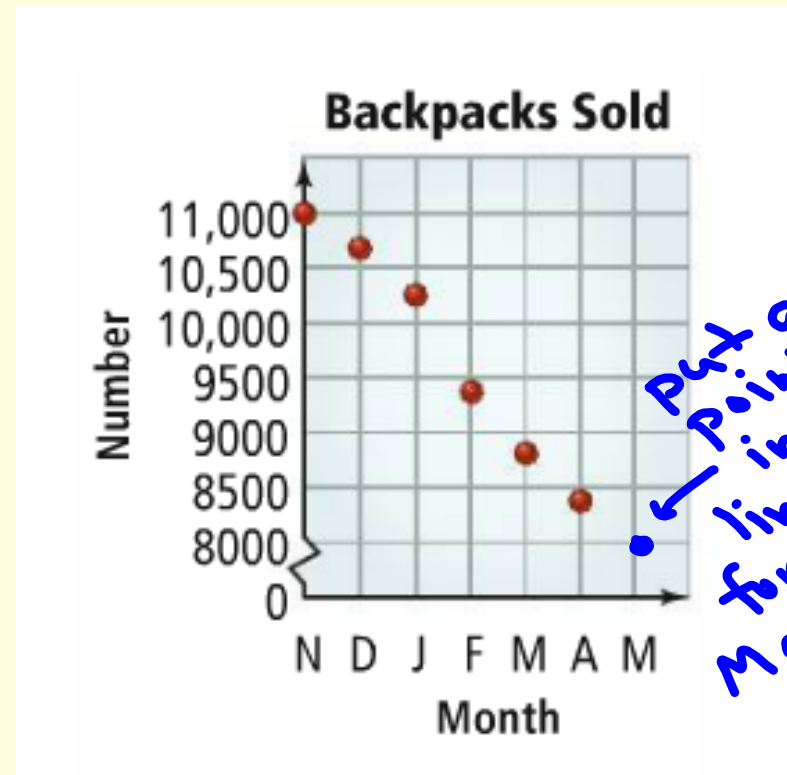
+3 +1 +3 +1 +3 +1

Sales of backpacks at a nationwide company decreased over a period of six consecutive months. What conjecture can you make about the number of backpacks the company will sell in May?

8000

Is it reasonable to use this graph to make a conjecture for August?

No, that is too far in the future



Assignment:

Math XL

Concept 5 part 1