

The statement you believe to be true based on inductive reasoning is called a CONJECTURE.

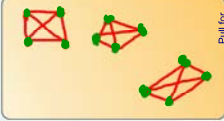
Complete each conjecture by looking at specific examples and finding a pattern.

The product of an even and odd number is

$2 \cdot 5 = 10$
 $4 \cdot -3 = -12$
 $-3 \cdot 2 = -6$

Always even

The number of lines formed by four noncollinear points is



6

The blue-whales blows compared to the humpback-whales blows will always be

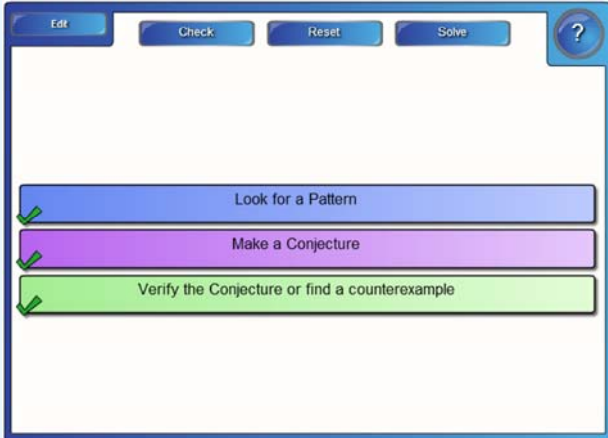
A biologist records blue-whale blows of 29ft, 27ft, 25ft, and 24ft
Another biologist records humpback-whale blows of 7ft, 8ft, 9ft, and 7ft

Greater

A conjecture formed by inductive reasoning is only a guess and is not accepted as a true fact until it is proven using other reasoning we will learn later.

To show that a conjecture is false, you have to find only one example in which the conjecture is not true. This case is called the **COUNTEREXAMPLE**.

Determine the order of the stages of Inductive Reasoning.



To prove something is false, you only need 1 counterexample.

Ex1. Your mother claims:

You always throw your towel on the floor after showering !!



The first thing you try to do is prove her wrong:

That's not true. Yesterday I threw it on my bed.



Ex 2. Your brother claims:

All even numbers end in 2,4,6, or 8



You kindly prove him wrong by saying :

Really, Einstein? What about the number 100?



Find a **counterexample** for each:

Ex. 3 All even numbers are divisible by 4

10 is an even number and it is not divisible by 4.

Ex. 4 All integers are either positive or negative

0 is an integer, but it is neither positive nor negative.

Ex. 5

The difference of two integers is always positive.

The difference between -3 and 5 is -8 ($-3-5=-8$).