

Exponential Notation

1. I was so excited with what Aunt Bessie told me that I couldn't resist telling my sister and my best friend the next day. But I told them never to tell anyone and I never told anyone else so I was certain my secret was safe. What I didn't know was that on the second day my sister and my best friend each told two people. Each told two different people and never told anyone else. And so it went that as each person learned of the secret they told two other people.

A. How many days will it take before 100 people know the secret?

B. How long do you think it took before Aunt Bessie found out?

C. How many days will it take before 1000 people know the secret?

Bonus: How long will it take until every person in the world knows the secret? Assume that no one ever hears the secret twice.

2. Is this statement always true, sometimes true, or never true?

$$2^4 > 4^2$$

A. What is your discovery? Show at least three examples and/or three counter examples to prove your reasoning.

B. What if the 2 and 4 were different numbers. Is your answer still the same? Explain your reasoning.