Chicken McNuggets originally came in boxes of 6, 9, or 20 McNuggets.

A McNugget number is a positive integer that can be obtained by adding together orders of Chicken McNuggets, prior to consuming any.

1. Prove that the following are McNugget numbers:

$$15, 35, 41, 42, 44, 45, 46, 47, 48, 49$$

2. Prove that 43 is not a McNugget number

3. Prove that every integer $n \geq 44$ is a McNugget number

Suppose you are able to go up a set of stairs by taking either one stair or two stairs a time.

How many different ways can you go up a staircase with *n* stairs?
Give a proof for your conjecture.

It may help to first compute this for a few small values of *n*.