Answer on Question #38962-Math-Math, Other

1) Let's prove that **L1** is not regular. We can use pumping lemma. If **L1** is regular, there exist such **n** that we can pump any balanced parenthesis longer than **n**. OK. Then we can do this

   n n

   to this one: **( )** . Obviously, after pumping new parenthesis is unbalanced.

2) Let's prove that **L2** is not regular. We can use pumping lemma again. There is no infinite sequence of Fibonacci numbers with constant difference between neighboring elements.

3) Let's prove that **L3** is regular. Any Fibonacci number larger than 5 can be represented as 13x + 8y. And any number from closure under addition of Fibonacci numbers larger than 5 can be too. Then wi can use this prefix grammar:

   Σ: {a}.

   S: {ε }.

   P:

   ε → aaaaaaaa;

   ε → aaaaaaaaaaaaa.

   Proved!

Answer: C.