

PROBLEM I.5 - FIBONACCI SEQUENCE

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1. Catalan's identity: $F_n^2 - F_{n+r}F_{n-r} = (-1)^{n-r}F_r^2$
2. I coded the identity inside an if statement to print out 'True' if it holds and 'False' if it does not hold. It held when the starting two terms were the same number but it did not hold when one was bigger than the other. It even worked when the two starting numbers were the same negative number. Also, it was a requirement for n to be larger than r.
3. If the initial terms do change, the n and r values probably have to change based on how far apart the initial values are. It is hard to say how exactly the initial terms effect the sequence because Catalan's identity seems to be pretty complex.