Python 01 Challenge!

Consider the recursion formula

$$u_{n+3} = u_{n+2} + ha\left(\frac{23}{12}u_{n+2} - \frac{4}{3}u_{n+1} + \frac{5}{12}u_n\right),$$

with $n = 0, \ldots, 1000$, $h = 1/1000$, $a = -1/2$, $u_0 = \exp(0)$, $u_1 = \exp(ha)$, $u_2 = \exp(2ha)$.

(a) Create a list `approx` with the values of u, starting with the three given values and completing it with the recursion formula.

(b) Create another list `exact` with values $\exp(anh)$.

(c) Create another list `error` with the difference between the two lists.

Hints:

```
from math import exp
for (e, a) in zip(exact, approx):
    ...
```