FIBONACCI NUMBERS

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, ...

notation: $F_0 = 0,\ F_1 = 1,\ F_2 = 1,\ F_3 = 2, \ldots$

recursive definition: $F_0 = 0,\ F_1 = 1,\ \underbrace{F_n = F_{n-1} + F_{n-2}}_{\text{recursive}}$ for $n \geq 2$

$$F_{34} = F_{33} + F_{32}$$
$$= F_{32} + F_{31} + F_{31} + F_{30}$$
$$= F_{31} + F_{30} + F_{30} + F_{29} + F_{30} + F_{29} + F_{29} + F_{28}$$
$$\vdots$$
$$= F_1 + F_0 + F_1 + F_0 + \cdots$$

iterative approach: use a loop with two accumulators to store two Fibonacci numbers

	step 1	step 2	step 3	step 4	step 5
a:	0	1	1	2	3
b:	1	1	2	3	5
next:	1	2	3	5	8

accumulators: a, b