Notes

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we use cauchy sequence to prove convergence when we don't know the value of the limit.

example 2.8.8

read exmple, we are doing something similar excercise I
show that

$$1 + \cfrac{1}{1 + \cfrac{1}{1 + \frac{1}{1 + \dots}}}$$

is convergnt.

$$a_1 = 1$$
$$a_2 = 1 + \frac{1}{1 + 1} = \frac{3}{2}$$
$$a_3 = 1 + \frac{1}{1 + \frac{1}{1+1}} = \frac{5}{3}$$
$$a_{n+1} = 1 + \frac{1}{a_n} \forall n \geq 2$$
$$a_4 = \frac{8}{5}$$
$$a_5 = \frac{13}{8} a_2 < a3$$
$$a_3 > a_4$$

next term is numerator+denominator divided by numerator
fibanocci sequence