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Exercise 1.4.

Amdahl's law $\text{speedup} = \dfrac{1}{1 - P + \dfrac{P}{n}}$

P - fraction which can be executed parallel
n — number of processors

one processor – 5 zillion instructions   – type 1

ten processors – 1 zillion instructions each   – type 2

type 1 processor has $\text{speedup} = 5$ (executes 5 times faster than one type 2 processor).
Let's check what's the – P when type 1 processor and 10 type 2 processor
perform in the same way :

$$5 = \frac{1}{1 - P + \frac{P}{n}} \quad \Bigg| \Rightarrow 5 = \frac{1}{1 - P + \frac{P}{10}} \quad \Bigg| \Rightarrow 10 - 10P + P = 2$$

$$n = 10 \qquad\qquad\qquad\qquad\qquad\qquad -9P = -8$$

$$P = \frac{8}{9} = 0.88889$$

So, it more than 88.8889 % fraction of the program is parallelizable
it is better to buy ten-processor multiprocessor where each processor
executes "one zillion" instructions persecond. But If less than 88.9589%
program is parallelizable then one processor which executes "5 zillion" instructions
is better choice.