

Describe 5.432e14 usec in human terms. **Show your work.**

5.432e14 is a notation for  $5.432 \times 10^{14}$ . usec is a notation for  $10^{-6}$  seconds. Together, this becomes  $5.432 \times 10^{14} \times 10^{-6}$  seconds, which is equivalent to  $5.432 \times 10^8$  seconds, or 543,200,000 seconds, which is a weird way to refer to seconds.

In human terms, I would probably say it makes more sense to convert this to a larger unit of time because nobody discusses seconds by the millions. Using our handy dandy dimensional analysis, we can convert 543,200,000 seconds to years:

$5.432 \times 10^8 \text{ seconds} \times 1 \text{ minute}/60 \text{ seconds} \times 1 \text{ hour}/60 \text{ minutes} \times 1 \text{ day}/24 \text{ hours} \times 1 \text{ year}/365 \text{ days} = 17.225 \text{ years}$