



Problem of the Week

Problem B and Solution

Your Teeth, You Must Care For

Problem

Some dentists recommend that you brush your teeth twice a day for 2.5 minutes each time. Assume for these problems that this recommendation has been followed. Also assume there are no leap years.

- How many seconds per day of brushing are required by this recommendation?
- About how many hours would you brush your teeth in a year?
- Over the past 25 years, for about how many days would this hockey player have brushed what teeth he has?
- Yoda was about 900 years old. Regularly, his teeth he did brush. For about how many weeks would he have brushed his teeth throughout his life?



Solution

- It is recommended that you brush for 2.5 minutes twice per day, for a total of 5 minutes per day. The recommended number of seconds per day is $5 \text{ minutes per day} \times 60 \text{ seconds per minute} = 300 \text{ seconds per day}$.
- The recommended number of minutes per year is $5 \text{ minutes per day} \times 365 \text{ days per year} = 1825 \text{ minutes per year}$. This is equal to 30 hours and 25 minutes, or $30\frac{5}{12} \text{ hours} \approx 30.42 \text{ hours}$. Alternatively, 5 minutes is equal to $\frac{1}{12}$ of an hour, giving $\frac{1}{12} \text{ hours per day} \times 365 \text{ days} = \frac{365}{12} \text{ hours}$ or $30\frac{5}{12} \text{ hours}$.
- The number of hours of brushing in 25 years is equal to $\frac{365}{12} \text{ hours per year} \times 25 \text{ years} = \frac{9125}{12} \text{ hours} = 760\frac{5}{12} \approx 760.42 \text{ hours}$. This gives a total of $\frac{9125}{12} \text{ hours} \div 24 \text{ hours per day} \approx 31.7 \text{ days}$, slightly less than 32 days.
- The number of hours of brushing in 900 years would be $\frac{365}{12} \text{ hours per year} \times 900 \text{ years} = \frac{328500}{12} = 27375 \text{ hours}$ of brushing. This gives $27375 \text{ hours of brushing} \div 24 \text{ hours per day} = 1140.625 \text{ days}$ of brushing. This is equal to $1140.625 \text{ days of brushing} \div 7 \text{ days per week} \approx 162.95$ or almost 163 weeks of brushing.