8.EE Giantburgers

Alignments to Content Standards: 8.EE.A.4

Task

This headline appeared in a newspaper.

| Every day 7% of Americans eat at Giantburger restaurants |

Decide whether this headline is true using the following information.

- There are about $8 \times 10^3$ Giantburger restaurants in America.
- Each restaurant serves on average $2.5 \times 10^3$ people every day.
- There are about $3 \times 10^8$ Americans.

Explain your reasons and show clearly how you figured it out.

Edit this solution

Solution

If there are about $8 \times 10^3$ Giantburger restaurants in America and each restaurant serves about $2.5 \times 10^3$ people every day, then about

$$8 \times 10^3 \cdot 2.5 \times 10^3 = 20 \times 10^6 = 2 \times 10^7$$

people eat at a Giantburger restaurant every day.

Since there are about $3 \times 10^8$ Americans, the percent of Americans who eat at a Giantburger restaurant every day can be computed by dividing the number of
restaurant patrons by the total number of people:

\[ 2 \times 10^7 \div 3 \times 10^8 = \frac{2}{3} \times 10^{-1} \]

Since

\[ \frac{2}{3} \times 10^{-1} = \frac{2}{3} \times \frac{1}{10} = \frac{2}{30} = \frac{1}{15} = 0.06\overline{6}, \]

our estimate is that \(6\frac{2}{3}\%\) of Americans eat a Giantburger restaurant every day, which is reasonably close to the claim in the newspaper.