

Try Your THE HARDEST MATH PROBLEM GRADE 6

At Solutions middle School, Ms. Heim's class is branching off from the study of food webs in nature to investigate food access for humans. Her students are dismayed that food insecurity is a reality in the U.S. Two of the students, Aliza and Darius, present their research on a poster board:

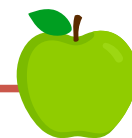
- **Food insecurity** is a lack of consistent access to enough food for an active, healthy life.
- **Causes of food insecurity** include poverty, climate change, health issues, and unemployment. The COVID-19 pandemic worsened food insecurity.
- **Tens of millions of people** live in a food desert, per U.S. census data.
- **Communities respond** by providing food access through multiple pathways.

"What's a food desert?" Ji-Hoon asks.

"Great question," Aliza replies. "A **food desert** refers to an area where it's hard to find fresh, nutritious food - like vegetables, fruits, and meats - at affordable prices."

Darius adds, "Instead, food deserts tend to have processed foods that are high in sugar and fats. That's a health issue."

Solve the Problem

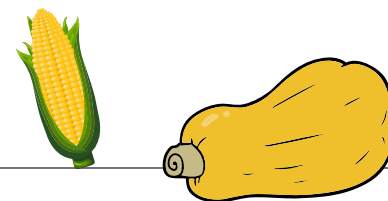


Ji-Hoon and his best friend, Camila, decide they want to take action. Camila points out, "To tackle a problem, we first need to understand its size. "They find the data showing the percentages of food insecure households in all 50 states as well as in Washington, D.C. "Let's sort the data so we can find the median percentage, "Hi-Hoon says. They order the data:

5.7%	6.9%	7.0%	7.9%	8.2%	8.4%	8.4%	8.5%	8.6%	8.8%	8.9%
9.1%	9.2%	9.2%	9.2%	9.6%	9.7%	9.8%	9.9%	9.9%	10.0%	10.0%
10.1%	10.1%	10.3%	10.4%	10.5%	10.5%	10.6%	11.0%	11.2%	11.3%	11.4%
11.5%	11.5%	11.6%	11.6%	11.8%	11.8%	11.9%	12.1%	12.5%	12.6%	13.3%
13.4%	13.8%	14.0%	14.6%	14.8%	15.1%	15.3%				

source: U.S. Department of Agriculture

SOLVE IT: Use the median percentage of the states to estimate the number of food-insecure households in a school district the same size as Ji-Hoon and Camila's school district, which has about 20,000 households. Please round all work to the thousandths place when working out solutions. Round the final to the nearest whole number of households.



Try Your
THE HARDEST MATH PROBLEM
CHALLENGE 1 ANSWER KEY – GRADE 6

Although each problem has one correct numeric solution, there are multiple pathways students can take to arrive at the answer.

Sample Solution

Step 1: Since there is an odd number of pieces of data, I need to mark out the highest percentage and lowest percentage in pairs (one piece of data from the beginning and one piece from the end) until I am left with one data value in the middle.

5.7%	6.9%	7.0%	7.9%	8.2%	8.4%	8.4%	8.5%	8.6%	8.8%	8.9%
9.1%	9.2%	9.2%	9.2%	9.6%	9.7%	9.8%	9.9%	9.9%	10.0%	10.0%
10.1%	10.1%	10.3%	10.4%	10.5%	10.5%	10.6%	11.0%	11.2%	11.3%	11.4%
11.5%	11.5%	11.6%	11.6%	11.8%	11.8%	11.9%	12.1%	12.5%	12.6%	13.3%
13.4%	13.8%	14.0%	14.6%	14.8%	15.1%	15.3%				

Step 2: Now I will use the median percentage of 10.4% to set up a proportion to determine how many households out of a total of 20,000 households are likely living with food insecurity.

Let n = the number of households out of 20,000 living with food insecurity

Before I can set up my proportion, I will 10.4% to its equivalent fraction of 10.4/100.

Step 3: I will solve the proportion for n using cross-multiplication.

$$\frac{n}{20,000} = \frac{10.4}{100}$$

$$100n = 208,000$$

$$n = 2,080$$

Final Answer: In a school district with 20,000 households, there would be an estimated 2,080 households with food insecurity based on the median percentage of 10.4%.