MATHCOUNTS® Problem of the Week Archive

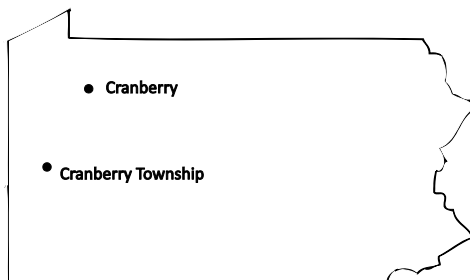## *Thanksgiving – November 25, 2024*

Problems & Solutions

In 2020, the township of Pilgrim in Dade County, MO had a population of 131 residents, while Mayflower, AR had a population of 1984 residents. If a typical American consumes an average of 14.8 lbs of turkey each year, what is the positive difference between the total number of pounds of turkey consumed by Pilgrim residents and the total number of pounds of turkey consumed by Mayflower residents in 2020? Express your answer as a decimal to the nearest tenth.

*There are 1984 – 131 = 1853 more residents in Mayflower than Pilgrim. Those 1853 people would consume a total of 1853 × 14.8 = **27,424.4** lbs of turkey.*
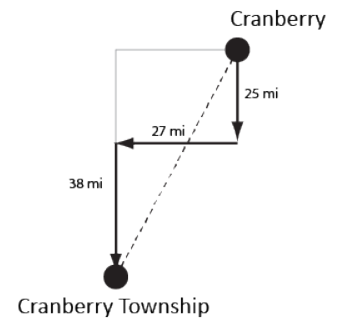
In one year, 2.9 billion pounds of sweet potatoes were produced in the United States. If 8.5% of those sweet potatoes were produced in Louisiana, how many tons of sweet potatoes were produced in the United States outside of Louisiana? (Note: 1 ton = 2000 lbs)

*If 8.5% of the sweet potatoes were produced in Louisiana, it follows that 100 – 8.5 = 91.5% of the sweet potatoes produced in the United States were produced outside of Louisiana. That means 2.9 × 0.915 = 2.6535 billion pounds of sweet potatoes were produced in the United States outside of Louisiana. Therefore, the total amount of sweet potatoes produced outside of Louisiana in the United States was 2,653,500,000 ÷ 2000 = **1,326,750** tons.*

One route from the city of Cranberry, PA to Cranberry Township, also in Pennsylvania, requires travelers to drive 25 miles south, then drive west for 27 miles and finally drive 38 miles south. What is the distance of a direct route from the city of Cranberry to Cranberry Township? Express your answer as a decimal to the nearest tenth.

*The route described, shown here with solid black arrows, is 25 miles south, 27 miles west and 38 miles south. The dashed line indicates the direct route between the two locations. Notice that this is the hypotenuse of a right triangle with a short leg of length 27 miles and a long leg of length 25 + 38 = 63 miles. Using the Pythagorean theorem, we determine the shortest distance between these two locations to be $\sqrt{(27^2 + 63^2)} = \sqrt{(729 + 3969)} = \sqrt{(4698)} = 68.5419579528 \approx$ **68.5** miles.*

Cranberry

25 mi

27 mi

38 mi

Cranberry Township

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