

# MATHCOUNTS® Problem of the Week Archive

## Gobble! Gobble! – November 19, 2018

### Problems & Solutions

In 2018 the United States is expected to produce 240 million turkeys. That is a decrease of 1% compared to the number of turkeys produced in 2017. How many turkeys were produced in the U.S. during 2017? Express your answer to the nearest million.

*The turkey production expected in 2018 is down 1% compared to 2017. That means the 240 million turkeys expected in 2018 is 99% of the number of turkeys produced in 2017. So, the number of turkeys produced in 2017 to be  $240 \text{ million} \div 99/100 = 240 \text{ million} \times 100/99 \approx \mathbf{242}$  million turkeys.*

Turkeys produced in 2017 had a total weight of 7.495 billion pounds and a total value of \$4.841 billion. If the U.S. is expected to produce an estimated 5.899 billion pounds of turkey in 2018 worth an estimated \$4.867 billion, what is the absolute difference in cents per pound of turkey in 2017 and in 2018? Express your answer to the nearest whole number of cents.

*Recall that 1 billion =  $10^9$ . So, the absolute difference in the cents per pound of turkey in 2017 and in 2018 is  $| (4.867 \times 10^9)/(5.899 \times 10^9) - (4.841 \times 10^9)/(7.495 \times 10^9) | = | (4.867)/(5.899) - (4.841)/(7.495) | \approx 0.1792 \approx \mathbf{18}$  cents.*

In 2018, Minnesota, North Carolina, Arkansas, Indiana, Missouri and Virginia are expected to be the top turkey producing states, contributing 42.5 million, 31.0 million, 28.5 million, 20.5 million, 17.3 million and 17.0 million turkeys, respectively. What percent of the total number of turkeys expected to be produced in 2018 will likely come from these six states combined? Express your answer to the nearest whole number.

*Combined, these six states are expected to produce  $42.5 + 31.0 + 28.5 + 20.5 + 17.3 + 17.0 = 156.8$  million turkeys in 2018. Since we know that the U.S. is expected to produce a total of 240 million turkeys in 2018, these six states will produce about  $156.8/240 \approx 0.65 = \mathbf{65\%}$  of them.*

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### ***Problems***

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