

Kirchner's Math Whizzes, age 10, Expert

We decided to use work backwards because the first number we needed to find the answer was given at the end of the problem.

To work backwards, we figured out that 145 was one third of the distance left after the first day. We knew this because they drove $\frac{2}{3}$ of the remaining distance on the second day, so that would mean that 145 is $\frac{1}{3}$ of that distance because $\frac{2}{3} + \frac{1}{3} =$ a whole.

We found that if 145 is $\frac{1}{3}$ of the whole, if we take it times 2, we will get $\frac{2}{3}$, which is the distance driven on the second day. $145 \times 2 = 290$. If we take 145 times 3, we will know what the whole distance was for days 2 and 3. $145 \times 3 = 435$ miles.

Then we looked at the information for the first day. They drove halfway on the first day, so that means that 435 is equal to $\frac{1}{2}$ of the way there. so we took $435 \times 2 = 870$. That means that 870 miles is the whole distance to Aunt Mazie's house.

Next we checked back. We started working from the beginning of the problem with our answer- 870. If they drove halfway on the first day, that would be $870/2 = 435$ miles. We then subtracted 435 from 870 and got 435. That would be the beginning distance on day 2. Then the problem said they traveled $\frac{2}{3}$ of the remaining distance on the second day. We took $\frac{2}{3}$ of 435 which equals 290 miles. So we subtracted 290 from 435, and they had 145 miles left for the 3rd day. This matched the information in the problem so we knew we were right!

on the extra part, took the total miles- 870 and divided it by 50 so we could see if the drive would take less than one day. $870 \text{mi.} / 50 \text{mi. per hour} = 17 \frac{2}{5}$ hours. We used equivalent fractions to find out that $\frac{2}{5}$ of 60 minutes (1 hour) = 24 minutes. The trip would take 17 hours and 24 minutes to complete.

If there were mostly adults or older children in the car, they might have driven it in one day. If there were small children, infants, or only one adult who could drive, they would probably take more than one day to come back.

Scoring Rubric

A **problem-specific rubric** can be found linked from the problem to help in assessing student solutions. We consider each category separately when evaluating the students' work, thereby providing more focused information regarding the strengths and weaknesses in the work.

We hope these packets are useful in helping you make the most of the Math Fundamentals Problems of the Week. Please let me know if you have ideas for making them more useful.

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My favorite part of this team's solution is that they checked their work to make sure that everything came out as expected.

They've also done a nice job with the Extra, reflecting on the possible ages and, therefore, driving options, of the family members.