Monday cup #13- Solution

Posted on: June 24, 2019
Due on: June 30 2019

Problem

Lower Elementary:

Question: Zura had an excellent fishing day. She caught 4 snappers, 6 mackerels, 1 grouper, and 1 soggy boot. She threw half the snappers and half the mackerels back into the ocean. How many fish did she take home?

Answer: 6

Solution: Olivia caught 4 snappers + 6 mackerels + 1 grouper = 11 fish. She threw back half of 4 = 2 snappers and half of 6 = 3 mackerels, 5 fish altogether. So, Olivia took home 11 – 5 = 6 fish.

Upper Elementary:

Question: Harvey goes to a theme park where tokens cost 75 cents. A roller coaster ride costs 2 tokens. A ride on the Ferris wheel costs 3 tokens. Harvey rides the roller coaster and the Ferris wheel 7 times each. How much did Harvey spend on rides?

Answer: $26.25

Solution: Two tokens for the roller coaster cost 75 cents x 2 = $1.50. Three tokens for the Ferris wheel cost 75 cents x 3 = $2.25. The total cost for 7 rides on the roller coaster cost $1.50 x 7 = $10.50, and 7 rides on the Ferris wheel cost $2.25 x 7 = $15.75. So, Harvey spent $10.50 + $15.75 = $26.25.

Middle School:

Question: One out of every 250,000 alligators is born white. If there are an estimated 1,750,000 alligators in the state of Florida, how many of them are likely to be white?

Answer: 7

Solution: If there is one white alligator per group of 250,000 alligators, then we need to find how many groups of 250,000 alligators there are in Florida. Because 1,750,000 alligators divided into groups of 250,000 makes 7 groups, there are an estimated 7 white alligators in Florida.

Algebra and Up:

Question: It costs $20 to rent a jet ski, plus $1.50 for each hour of use, plus the cost of gas. James rents a jet ski for 2 hours. He uses 3 quarts of gas, which costs $2.98 per gallon. How much does the jet ski rental cost in total?

Answer: $25.24

Solution: To find the price of the rentals, we can use the expression $20 + $1.50t + $2.98g wherein t is the number of hours spent with the jet skis and g is the gallons of gas used. James rented 1 jet ski for 2 hours and used ¾ of a gallon of gas, so he spent $20 + $1.50(2) + $2.98(.75) = $25.24 after rounding.

There were correct solutions from Gigi zakaradze (Georgia, the country).
The prize was split between zakaradze

Rules

1. Anyone is eligible to participate. Each solution is to be the work of one individual without any input from faculty or others. An answer must be accompanied by appropriate justifications to be considered correct.
2. The solution is to be submitted with the solver's name, email, year in school (if applicable), local phone number, and local address. If you are submitting this for possible credit in a class, include your class number and instructors name.
3. The solution is to be typed or legibly written. Solutions must be submitted to the by 2 p.m. on the due date.
4. Entries will be graded on clarity of exposition and elegance of solution. An award of GEL10 will be given for the best correct solution. In the case of a two-way tie, the award will be split. If there are more than two best solutions, a drawing will be held to determine two award winners.
5. Graduate students, faculty, and members of the general public are encouraged to submit solutions, but they will not be considered.

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Solution for this problem can be submitted proveweek@gmail.com