Problems & Solutions
The ratio of girls to boys in Mrs. Franks’ 7th grade class is \( \frac{3}{4} \) (excluding Mrs. Franks). On Monday, 4 girls and 6 boys got to go on a special field trip for honor roll students. Since no other students were absent on Monday, the ratio of girls remaining in the class to boys remaining in the class was 4/5. How many students are in Mrs. Franks’ class when everyone is present?

The ratio of girls to boys is normally \( \frac{3}{4} \), which is the same as \( \frac{3x}{4x} \). After 4 girls leave and 6 boys leave, we can represent the number of girls and the number of boys as \( 3x - 4 \) and \( 4x - 6 \), respectively. We are told that the ratio becomes 4/5 when the field trip students leave, thus we can set up the equation \( \frac{3x - 4}{4x - 6} = \frac{4}{5} \). Now, we cross-multiply and solve for \( x \).

\[
5(3x - 4) = 4(4x - 6) \rightarrow 15x - 20 = 16x - 24 \rightarrow 4 = x
\]

This means there are normally \( 3(4) = 12 \) girls in the class and \( 4(4) = 16 \) boys in the class, giving us a total of \( 12 + 16 = 28 \) students.

On the field trip, Abbey, Bethany, Christine and Darcy bought a total of 4 hot dogs and 3 sodas, which cost the girls \$17.00 before tax. Edward (one of the boys on the field trip) bought 2 hot dogs and 1 soda from the same lunch stand and it cost him \$7.80 before tax. How much would 1 hot dog and 1 soda cost at the lunch stand before tax?

We will first need to set up two equations using the two totals that were provided in the question. Let \( h = \) cost of a hotdog and \( s = \) cost of a soda.

\[
4h + 3s = 17.00
\]

\[
2h + 1s = 7.80
\]

By subtracting the second equation from the first, we find that \( 2h + 2s = 9.20 \). Thus, the cost of 1 hotdog and 1 soda is \( \frac{9.20}{2} = \$4.60 \).

On the same day, 32 students from the 6th grade got to go on a field trip to the zoo. When they returned to the school after the field trip the students were asked to answer a couple of survey questions. One of the questions asked, “Which animal did you like best, the elephants or the lions?” When all of the surveys had been turned in, 20 students had selected elephants and 22 had selected lions. If all of the students selected at least one of the two choices, how many students selected both lions and elephants?

Since all of the students selected at least one of the choices and there were \( 20 + 22 = 42 \) “best” animal choices made, \( 42 - 32 = 10 \) students must have selected both animals.
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