Logic Escape Room 1

Enter the answers for each of the logic problems into the google form provided to see if you can help Mrs. Root, Mr. Tally, and Mrs. Beal escape the locked classroom!

1. CODE: Find the numbers that correspond to the missing numbers. The CODE for the first lock is the sum of these numbers.

$$
\begin{array}{r}
\star 5 \\
37 \\
51 \\
+\,4¢ \\
\hline
161
\end{array}
$$

$\star = \underline{\hspace{2cm}}$

$¢ = \underline{\hspace{2cm}}$

2. CODE: Answer the riddle. The code for the second lock is the name of the person with the least amount of money.

Riddle:

Sue has more money than Bill.

Bill has less money than Tom.

Tom has less money than Sue.

Who has the least amount of money?

3. CODE: The pattern of your results is the key to the third lock. Just enter the number pattern.

Experiment with this three-step procedure. An interesting pattern results!

STEP 1
Write a three-digit number in which the digits decrease in value.

STEP 2
Reverse the numbers and subtract.

STEP 3
Reverse the numbers and add.

three digits ➡

1.
$$
\begin{array}{r}
962 \\
-\,269 \\
\hline
\\
+ \\
\hline
\end{array}
$$

2.
$$
\begin{array}{r}
\\
- \\
\hline
\\
+ \\
\hline
\end{array}
$$

3.
$$
\begin{array}{r}
\\
- \\
\hline
\\
+ \\
\hline
\end{array}
$$

4.
$$
\begin{array}{r}
\\
- \\
\hline
\\
+ \\
\hline
\end{array}
$$

5. Describe your results:

4. CODE: The code to lock number four is the letters of the equations that do not match the pattern. Make sure you enter the letters in alphabetical order if you want to help us escape!

$$\frac{1}{M} + \frac{N}{M} = \frac{1+N}{M}$$

A. $\dfrac{1}{3} + \dfrac{1}{3} = \dfrac{1+1}{3}$

B. $\dfrac{2}{3} + \dfrac{1}{3} = \dfrac{2+1}{3}$

C. $\dfrac{1}{8} + \dfrac{5}{8} = \dfrac{1+5}{8}$

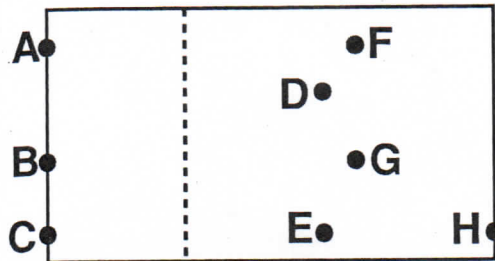D. $\dfrac{3}{11} + \dfrac{4}{11} = \dfrac{3+4}{11}$

E. $\dfrac{1}{15} + \dfrac{27}{15} = \dfrac{1+27}{15}$

F. $\dfrac{1}{23} + \dfrac{9}{23} = \dfrac{1+9}{23}$

G. $\dfrac{2}{9} + \dfrac{8}{9} = \dfrac{2+8}{9}$

H. $\dfrac{1}{1} + \dfrac{3}{1} = \dfrac{1+3}{1}$

5. CODE: Mentally fold the rectangle along the dotted line. The code to the fifth lock will be the two letters that coincide.

6. This is the final lock! Please help us out! You need to decode the logic problem below. The CODE will be the numbers in this order GOTK.

It's OK to go ahead and solve this problem. But fist you need to know that each letter represents a digit and that all O's represent the same digit. Here's another clue: O is less than 2, and T is greater than 7. OK, solve the problem!

$$\begin{array}{r} \mathsf{OK} \\ + \mathsf{TO} \\ \hline \mathsf{GO} \end{array}$$