



Problem of the Week

Problem E and Solution

Sticky Notes

Problem

The students in an art class displayed their final projects for an art exhibit at their school. Some of the projects were set up in the gym and the rest were in the library. After the exhibit finished, each student in the class went around and put a sticky note with a positive comment on each of their classmate's projects. Once they were done, the projects in the gym had a total of 308 sticky notes and the projects in the library had a total of 198 sticky notes. How many students were in the art class? How many of their projects were in the library?

Solution

Let n represent the number of students in the art class. Each student wrote $n - 1$ sticky notes, so in total there were $n(n - 1)$ sticky notes. We know the total number of sticky notes is $308 + 198 = 506$. Thus,

$$n(n - 1) = 506$$

$$n^2 - n = 506$$

$$n^2 - n - 506 = 0$$

$$(n - 23)(n + 22) = 0$$

Therefore $n = 23$ or $n = -22$. Since n represents the number of students, it follows that $n > 0$, so we can conclude that $n = 23$. Then there were 23 students in the class and they each wrote 22 sticky notes for their classmates' projects and each received 22 sticky notes on their own project.

Since there were a total of 198 sticky notes in the library, and each project had 22 sticky notes, it follows that there were $198 \div 22 = 9$ projects in the library.

Therefore, there were 23 students in the art class and 9 of their projects were in the library.