

NMSU MATH PROBLEM OF THE WEEK

Solution to Problem 1

Fall 2021

Problem 1.

100 students occupy all the tables of a cafeteria. When interviewed, twenty percent said they ate alone, thirty percent said they ate with one other person, thirty percent said they ate at a table of three, and the remaining twenty percent said they ate at a table of four. What is the average number of students at a table?

Solution.

Answer: The average is 2 students at a table.

With the information given we obtain that:

- $20 = \frac{20}{1}$ tables had one student,
- $15 = \frac{30}{2}$ tables had two students,
- $10 = \frac{30}{3}$ tables had three students, and
- $5 = \frac{20}{4}$ tables had four students.

Thus, there are $20 + 15 + 10 + 5 = 50$ tables.

Therefore, the average is

$$\frac{100}{50} = 2.$$