



Problem of the Week

Problem A and Solution

Bussing Business

Problem

Ms. Oakley is taking her 20 students on a field trip to the Science Centre. The costs are as follows:

- It costs \$440 for bus transportation to and from the Science Centre.
- The entrance fee to the Science Centre is \$20 per student.
There is no charge for Ms. Oakley.
- The cost to watch the IMAX movie is \$7 per student.
There is no charge for Ms. Oakley.

The budget for this field trip is \$50 per student. Do they have enough money in the budget for all students to watch the IMAX movie while they are at the Science Centre? Justify your answer.

Solution

Solution 1

One way to solve this problem is to calculate the total budget available, and the total cost for each component of the trip. Since there are 20 students and the budget for each student is \$50, then the total budget available is $20 \times 50 = \$1000$.

The cost of transportation for all students is \$440.

The cost for the entrance fee for all students is $20 \times \$20 = \400 .

The cost for all students to watch the IMAX movie is $20 \times \$7 = \140 .

Therefore the total cost of the trip, including the IMAX movie, would be $440 + 400 + 140 = \$980$. Since this is less than the \$1000 budget, they have enough money to watch the IMAX movie.

Solution 2

Another way to approach this problem is to calculate a cost per student for the trip. Since there are 20 students, then each student's share of the cost of the bus is $440 \div 20 = \$22$. Therefore, the total cost of the trip per student, including the IMAX movie, would be: $22 + 20 + 7 = \$49$. This is less than the budget of \$50 for each student, so they have enough money to watch the IMAX movie.