



Problem of the Week

Problem A and Solution

Bus Stops

Problem

An empty bus starts its daily route. Along the way it makes several stops. At each stop, some passengers board the bus and some passengers exit the bus.

The table shows how many passengers get on and get off the bus at each stop.

Stop Number	Number Boarding	Number Exiting
1	23	0
2	17	12
3	13	3
4	1	9
5	2	8

- How many passengers board the bus in total?
- The bus has seats for 30 passengers. Once all the seats are full, passengers must stand. Between the 3rd and 4th stops, are there enough seats for all the passengers? If not, how many passengers must stand?
- The bus gets a flat tire at the 6th stop so all the passengers need to exit. How many passengers get off the bus at the 6th stop?

Solution

- The total number of passengers who board the bus is: $23 + 17 + 13 + 1 + 2 = 56$.
- The table summarizes the number of passengers on the bus after each stop.

Stop Number	Number Boarding	Number Exiting	Total Passengers on the Bus
1	23	0	23
2	17	12	$23 + 17 - 12 = 28$
3	13	3	$28 + 13 - 3 = 38$
4	1	9	$38 + 1 - 9 = 30$
5	2	8	$30 + 2 - 8 = 24$

Thus, between the 3rd and 4th stops, there are 38 passengers on the bus. Since there are only 30 seats, there are not enough seats for all the passengers. The number of passengers who must stand is $38 - 30 = 8$.

- From the table in (b), we know that 24 passengers are on the bus when it arrives at the 6th stop. They would all need to exit. Thus, 24 passengers get off the bus at the 6th stop.