



Problem of the Week

Problem A and Solution

Roller Coaster Riders

Problem

A local amusement park has many roller coasters. On the roller coaster Gargantuan, the train has 8 cars, seating 4 guests in each car at one time. A ride starts every 3 minutes.

If the roller coaster was full every time, how many people rode the Gargantuan in a half an hour from the first ride starting? Justify your answer.

Solution

If there are 8 cars, and each car can hold 4 guests, then the maximum capacity of the roller coaster is $8 \times 4 = 32$. In other words, at most 32 people can ride the Gargantuan at one time.

Half an hour is equal to 30 minutes. Now we can make a table to keep track of the total number of riders, if 32 people ride the Gargantuan every 3 minutes.

Time Elapsed (minutes)	Total Number of Riders
3	32
6	64
9	96
12	128
15	160
18	192
21	224
24	256
27	288
30	320

Alternatively, we can calculate that in 30 minutes, there must be $30 \div 3 = 10$ rides completed. Since the maximum capacity of one ride is 32 people, then the maximum number of riders in 30 minutes is $32 \times 10 = 320$ people.