

Problem

A group of 80 guests arrive at a hotel and are all waiting on the ground floor to take the lift to the floor that their rooms are on.

42 guests have rooms on Floor 7. The rest have rooms on Floor 11.

From the ground floor, the lift takes 35 seconds to reach Floor 7 and 55 seconds to reach Floor 11. It takes the same times to return to the ground floor from these floors.

A maximum of 12 people and their luggage can fit into the lift at a time.

The lift stops for exactly 20 seconds once it reaches a selected floor to allow people to get in or get out.

The manager has worked out a way of getting all the guests to their floors in the fastest possible time as soon as the lift doors open on the ground floor.

Please note:

- the only people that will be using the lift during this time will be the 80 guests; and
- the lift stops for 20 seconds, no matter how many people get in and out.



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What is the fastest time all of the 80 guests could get to their floor?

