

# Metro Card Rides

The cost of a subway ride is \$2.75. When you add value on to your metro card, the MTA automatically gives you an 11% bonus on the amount added (the total amount added is rounded to the nearest cent). The value added on to a metro card must be an amount ending in 0 or 5 cents. Because riders typically add values that are multiples of 10, they are left with remainders after a certain number of rides. Our goal is to minimize this remaining value for any number of desired rides  $n$ .

**Example:** For 3 rides a metro card must have at least 8.25 on it. The minimum amount that needs to be added is 7.45 since  $7.45(1.11)=8.2695$  rounds to 8.27 and  $7.40(1.11)=8.214$  rounds to 8.21.

## Goals:

1. Write a function `mta(n)` that, given a positive integer  $n$ , returns the minimum value that must be added to a metro card to purchase  $n$  rides.
2. **Bonus:** Write a function `remainder(n)` that computes the remaining value on a metro card, that has the minimum value needed to purchase  $n$  rides, after  $n$  rides,.
3. **Double Bonus:** Write a function `fix(money)` that, given an amount already on a metro card, finds the minimum amount of money that needs to be added to create a card that will have remainder 0.

## Test Cases:

1. For 6 rides, add 14.90 with remainder 0.04.
2. For 9 rides, add 22.30 with remainder 0.00.
3. (Double Bonus Test Case) For a remainder of 0.15, add 7.30.