

TEST No2

Conservation of water resources.

Participants in the situation – Martine and her grandmother.

Situation 1

Water and Sewage Company Corp. reported that there will be an increase in the service per cubic metre of water. Martine checks the bills and finds that it was simply the water that doubled in price, while keeping her grandmother's volume of consumption.

Martina's grandmother wonders if she can reduce her water bill to the previous levels amounting to 12-15 BGN per month. Martine decides to help her.

Martine makes the following measurements of the cold water meter:

Friday night	12,554.6
Saturday night	12,703.2
Sunday night	12,854.4

1. From a statistical point of view, we know that it takes at least 3 measurements to be able to say that the resulting values make some sense. Martina doesn't have this possibility, because she's at school on workdays. So, how much is the daily consumption of Martine's grandmother?
 - a. about 150 liters per day
 - b. about 50 liters per day
 - c. about 250 litres daily
 - d. about 200 litres daily
 - e. about 100 liters per day

She then asks her grandmother to mark every time she flushes the water of the toilet cistern.

Friday	11 times
Saturday	10 times

Sunday 12 times

She recorded the water meter's readings and flushed the water of the toilet cistern to check how many litres of water was needed in a single cycle.

Meter readings: before 12 867 / after 12 874

2. How many liters of water are needed for a single flush of the toilet cistern?
 - a. 12 l
 - b. 3 l
 - c. 7 l
 - d. 5 l
 - e. 8

3. How much of the water consumption is spent by the toilet cistern?
 - a. about 40%
 - b. about 60%
 - c. about 70%
 - d. about 20%
 - e. about 50%

Situation 2

Martine checks that there are more modern toilet cisterns models with water consumption of 6 l, but besides, she reads that there are toilet cisterns with a two-stage flushing mechanism – for half volume and a whole volume, that is, 3 and 6 liters. She shows her grandmother the new models, but she is not convinced that with the change of toilet cistern, her water consumption will decrease.

4. Martine looks for options to reduce water consumption. She places a 2-litre soft drink bottle into the cistern and checks whether it interferes with its normal functioning. Then Martine fills the bottle with water and places it inside. How much will Martine's grandmother save on water monthly?

- a. 0.5 BGN per month
- b. 3.5 BGN per month
- c. 12 BGN per month
- d. 7.5 BGN per month
- e. 2 BGN per month

Martine does not tell her grandmother but waits for her to be surprised by the lower water bill.

5. The bill for the month arrives and Martine's grandmother is surprised. Martina then explains to her grandmother what she has done, and her grandmother agrees to replace her toilet cistern with a two-step mechanism, which leads to extra savings, but of how much?
- a. 3 lv
 - b. 1 lv
 - c. 6 lv
 - d. 0.5 lv
 - e. 50 lv

monthly.

Situation 3

Martine's grandmother is surprised by her granddaughter's wit and asks her to check if there is no other option to reduce the water bill.

Martine looks for information and understands that there are shower heads with a maximum consumption of 8 liters per minute, but that would mean that she has to check her grandmother's shower consumption? She takes a standard bucket of 12 litres and it fills for 36 seconds at maximum water flow.

6. What's Martine's grandmother's shower consumption per minute?
- a. 12 litres
 - b. 4 liters
 - c. 3 litres
 - d. 20 litres

- e. 16 litres
7. Martine's grandmother takes a shower every other day. Martine finds out that her grandmother showers for an average of 10 minutes, with the shower working for 8 minutes. How many cubic metres will Martine's grandmother save on a yearly basis?
- a. 180 cubic meters per year
 - b. 1.8 cubic meters per year
 - c. 18 cubic metres per year
 - d. 9 cubic meters per year
 - e. 12 cubic meters per year
8. Martine's grandmother is extremely pleased with the changes. She has a new and economical cistern and shower. Her water bill of BGN 25 per month decreases to
- a. 20 BGN per month
 - b. 16 BGN per month
 - c. 11 BGN per month
 - d. 8 BGN per month
 - e. 27 BGN per month

Martina's grandmother decides to buy her chocolate weekly showing her gratitude towards the behaviour she demonstrates towards protecting water and water resources. And Martina's having a good time.