

Treasure hunt

Explorer Joca searched the attic of his grandfather and he found an old map. The map was faded out from long standing, but he could see that this is the map of the hidden treasure on the Procentus island. He couldn't see very well every detail, but the map was useful. He always loves challenges and decided to go treasure hunting.

First of all, he had to go shopping. He didn't want to spend a lot of time for finding cheaper stuffs that he need for hunting. He looked for the help of the internet and looked through catalogs. Here is what he found (some of the items have reduced price for several perccentes):

	SPADE	PICKAX	SHOVEL	HATCHET	SLEEPING BAG	SMALL TENT
INTER-KOMERC	399 ⁹⁹	270	280	412	1870	3899 ⁹⁹
TRADE COMPANY	450 -5%	290	300	420	2300 -18%	4200 -8%

Answer the question:

1. HOW MUCH MONEY HE WILL SPEND IF HE DOES SHOOPING IN THOSE SHOOPS?
WHICH ONE IS CHEEPER?

He also had to by some food. Here are the prices of required groceries in the super markets:

	CAN OF BEANS	CAN OF PEAS	WATER	BREAD	CHOKOL ATE	SAUSAGE /KG
INTEREX	256	222	127	85	42	875
TEMPO	250	265	130	87	40	956

Considering that was a Saturday, in the TEMPO was effective discount of 12% on all food, except bread.

Answer the question:

2. WHERE SHOULD HE DO SHOPPING TO SAVE MONEY?

So, he bought everything he needed, packed up and went to the road. When he reached the coast, he realized that he had to rent a boat or a scooter to go to the Percentus island. But first of all, he had to change money. Fortunately, there was a currency exchange where for one eki (eki is the official currency of the country) you give 2.5 dinars. The prices for renting were:

	1 hour	for each following started hour
BOAT	300 eki	+ 250 eki
SCOOTER	500 eki	+ 350 eki

The motor boat moves at the speed 20 km/h, and scooter even 50 km/h. On the local map he saw that the distance between coast and island is 45 km. The island isn't so big, so he ment that 3 hours will be enough to finish his job and start to go back.

Answer the questions:

3. WHAT TIME WILL HE NEEDS TO GET TO THE ISLAND IF HE USES BOAT, AND WHAT IF HE USES SCOOTER?

4. WOULD IT BE CHEAPER TO RENT A BOAT OR A SCOOTER?

5. HOW MUCH MONEY HE HAVE TO CHANGE FOR RENTING A CHEAPER BOAT?

When he arrived on the island he began to interpret the map. As far as map was a bit damaged, he had to draw the necessary objects. He read the instructions:

„Start with the point named P (the palm tree) and go right to the east for 15 steps. Then turn to the north, walk 8 steps straight ahead and there you will find the well W (although, when you read this, the well maybe no longer be there, so you must carefully count the steps). After that you have to find a big rock R. You will find it as a central symmetric point of point W relative to P. Go 4 steps north of the rock, and then 35 steps right to the east. And there you are! There is a treasure chest buried in the ground (point C). When you dig it up do not try to break the chest because it is made of very solid materials. Try to open it by the secret

cod. The code consists of the following numbers: the distance from the palm to the well, the absolute value of distance between the rock and the horizontal axis, 60% of distance between the well and the vertical axes, 25% of distance between the well and the x-axes counted as absolute value, the difference between coordinates of point where you find the chest.

Good luck! Enjoy the treasure!

Answer the questions:

6. PUT THE POINTS P, W, R and C IN THE COORDINAT SYSTEM ON THE DEFINED PLACES.

7. WHAT IS THE SECRET COD?

MATHEMATICAL KNOWELADGE BROUGHT YOU TO THE TREASURE!

