The Island of Knights and Liars

July 31st, 2016

Warm-up problems

1. The age of Peter's great grandfather is the smallest three digit number written with three *different* digits. How old is Peter's great grandfather?

2. Tara was prescribed a medication that she has to take every hour. She took the first pill at noon and has to take a total of 6 pills. When will she take the last one?

3. It is raining at midnight on Tuesday. Do you think we can we expect sunny weather in 48 hours?

Island of Knights and Liars

There are two types of inhabitants on the *Island of Knights and Liars*:

- *Knights* always tell the truth;
- *Liars* always lie;

From time to time, *Tourists* also visit the island. Tourists sometimes lie and sometimes tell the truth.

1. You arrive to the Island and meet two people, Tom and Tim. You ask each of them if he is a Knight.
   - Tom says that he is a Knight. Can you figure out who Tom is?
   - Tim says that he is a Liar. Can you figure out who Tim is?
2. Sara and Tara live on the island. Sara says: "We are both Liars". Can you determine who Sara and Tara actually are?

3. Mathew, Jack, and Kate are known to be Islanders (not Tourists!). You ask them if they are Knights.

   - Mathew is shy, and mumbles something which you can't hear.
   - You ask Jack what Mathew said. Jack says that Mathew said he was a Liar.
   - Kate says "don't believe Jack, he is a Liar!"

   Who are these Islanders? (*Note:* they are not tourists)

4. While visiting the Island of Knights and Liars, I had a conversation with a local Knight. I asked him the same question twice, and he gave me two different answers. What could be my question?

Fun problems

1. Kara added the age of her mom and the age of her dad and got 70. How soon (in how many years) will she get 80 when she adds up the age of her mom and the age of her dad?

2. Andy took a number, added 2 to it, then subtracted 5, then doubled the number. He got 4. What number did Andy start with?

3. One apple cost more than two bananas. What is more expensive: two apples or three bananas?