Junior Knights Week #5 Python Homework: Random Numbers

Problem A: Crazy Dice

Write a short python program that simulates rolling two twenty-sided dice, with labels 1 through 20. Your program should print out what shows on each die as well as their sum.

Sample Run

```
The first die shows 3.
The second die shows 14.
The total is 17.
```

Problem B: Many Crazy Dice

Write a program that simulates rolling two twenty-sided dice 50 times. Rather than printing out each die roll, just print out the sum obtained from the two dice each time.

Sample Run

```
The dice sum to 28.
The dice sum to 13.
The dice sum to 39.
[Omitting 46 lines!!!]
The dice sum to 20.
```

Problem C: Snake Eyes on Crazy Dice

Write a program that simulates rolling two twenty-sided dice 100000 times, counting now many times the sum of the two dice is 2. Based on these results as well as the results of the program (snakeeyes.py) shown in class, make a guess as to how often one can expect to roll snake-eyes (two 1s) on a pair of dice labeled 1 through n, for any positive integer n.

Sample Run

```
You got snake-eyes 35 times out of 100000.
That is .035 percent of the time.
Roughly, that is 1 in 2857 times.
```

Note: The numbers shown above are NOT realistic. This is just to show the format desired for your output.

Problem D: Different Dice Game

Now that you've seen Arup's Game of Dice, it's time to make your own!!!

Some choices you'll have to make:

1) Is the game for one player or two players?

2) What dice are you going to roll? (6 sided, 20 sided, something else?)

3) Will you roll the dice only once or more?

4) What happens depending on what you roll?

Is your game fair, or is the outcome biased towards one direction or the other (if one player, does the player have a greater than 50% chance of winning, if two players, does one player have an advantage?)

Problem E: (Optional) Random Turtle

Somehow incorporate random numbers with the Python Turtle. If you do, each time you run your program, perhaps a different design will be drawn!!!