CPSC 1301, Computer Science I Lab Assignment

Lab 03b

Problem 1

Write a Python program that accepts two floating point numbers as command line arguments and illustrates the following arithmetic operations:
- addition
- subtraction
- multiplication
- fractional division
- integer division
- square (exponentiation)

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a23_floatops.py 23.4 56.7
23.4 +  56.7 = 80.1
23.4 -  56.7 = -33.300000000000004
23.4 *  56.7 = 1326.78
23.4 /  56.7 = 0.4126984126984127
23.4 //  56.7 = 0.0
23.4 ** 56.7 = 4.310613802193414e+77
```

Problem 2

Write a Python program that accepts a command line argument of (1) test, (2) game, or (3) none, and prints `study` if test, `sleep` if game, or `party` if none.

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a24_dowhat.py none
party

C:\Users\ccc31\cols-st\cpsc1301\tests>a24_dowhat.py test
study

C:\Users\ccc31\cols-st\cpsc1301\tests>a24_dowhat.py game
sleep

C:\Users\ccc31\cols-st\cpsc1301\tests>a24_dowhat.py don't know
party
```

Problem 3

Write a Python program that accepts a floating point grade and prints the appropriate letter grade, i.e., A, B, C, etc.

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a24_grades.py 96.2
A

C:\Users\ccc31\cols-st\cpsc1301\tests>a24_grades.py 69.99999
D
```

Problem 4

Write a Python program that accepts a year (like 2021) and returns True if the year is a leap year, and False otherwise. 2020 will return True; 2021 will return False.

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a25_leapyear.py 2021
False

C:\Users\ccc31\cols-st\cpsc1301\tests>a25_leapyear.py 2020
True
```

Problem 5

Write a Python program that flips a coin X times and comptes the "fairness."

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a31_flip.py
tails = 493, heads = 507, fairness = 0.507000

C:\Users\ccc31\cols-st\cpsc1301\tests>a31_flip.py
tails = 514, heads = 486, fairness = 0.486000

C:\Users\ccc31\cols-st\cpsc1301\tests>a31_flip.py
tails = 481, heads = 519, fairness = 0.519000
```

Problem 6

Write a Python program that prints ten "Hellos."

```
C:\Users\ccc31\cols-st\cpsc1301\tests>a32_tenhellos.py
1st Hello
2nd Hello
3rd Hello
4th Hello
5th Hello
6th Hello
7th Hello
8th Hello
9th Hello
10th Hello
```