Problems for Junior Knights: Advanced Python (Warm Up)

Problem A: Picture Storage (Required)
Write a program that calculates the number of pictures that can be stored on a thumb drive. Ask the user to enter the number of gigabytes of data the thumb drive can store, as well as the length and width of each picture, in pixels. Assume that each pixel takes 3 bytes of storage. (This isn't really the case, since most pictures are stored in a compressed format.) Output your answer as a whole number. (Hint: Use integer division.)

*Note: There are **1073741824** bytes in a Gigabyte.

Sample 1: Input and Output
```
How many gigabytes can your thumb drive store?
4
What is the width of each picture in pixels?
3168
and height?
4752
You can store 95 pictures on your thumb drive.
```

Problem B: Field Trip
You only get to go on your field trip if you bring back a signed permission slip. If you get to go on the field trip, you get to choose between going to the history museum and the art museum. In your program, ask the user if they've brought back a signed permission slip. If they have, then ask them a history question. If they get it right, then tell them that they are going to the history museum. If they get it wrong, tell them they are going to the art museum. If the user doesn't bring back a signed permission slip, tell them they can't go on the field trip.

Sample Program Run #1
```
Did you bring back your signed permission slip(yes/no)?
no
Sorry, you aren't allowed to go on the field trip.
```

Sample Program Run #2
```
Did you bring back your signed permission slip(yes/no)?
yes
Which number amendment allowed women to vote in the US?
19
You will get to go to the history museum!
```

Sample Program Run #3
```
Did you bring back your signed permission slip(yes/no)?
yes
Which number amendment allowed women to vote in the US?
18
You will get to go to the art museum!
```

Problem C: Donation Collector (donation.py)

Write a program that asks the user how many donations they are going to collect and then asks them to list the value of each donation, in dollars. Finally, print out the sum of the donations gathered.

<u>Sample Run</u>

How many donations are you collecting?
4
How much is donation #1, in dollars?
25
How much is donation #2, in dollars?
10
How much is donation #1, in dollars?
50
How much is donation #1, in dollars?
5
You have collected a total of $90.

Problem D: Movie List (movies2.py)

Imagine that several friends are getting together to attend a movie. Unfortunately, schedules change so sometimes friends get added and friends remove themselves from the list because they can't go any more. Write a program to manage the list of people going to the movie!

The program should prompt the user with several choices (shown in the sample run below) from a menu. The last choice is to quit the program. Continue allowing the user to make choices until they quit, executing each choice they ask for. The options include being able to add someone to the list, delete someone from the list, search for someone on the list or print out everyone on the list. The list is a list of people attending a movie

<u>Sample Run</u>

Please select one of the following menu options.
1. Add a person to the movie list.
2. Delete a person from the movie list.
3. Search for a person in the movie list.
4. Print out all people currently going to the movie.
5. Close the list.
1
Who should we add to the list?
John

Please select one of the following menu options.
1. Add a person to the movie list.
2. Delete a person from the movie list.
3. Search for a person in the movie list.
4. Print out all people currently going to the movie.
5. Close the list.
1

Who should we add to the list?
Sarah

Please select one of the following menu options.
1. Add a person to the movie list.
2. Delete a person from the movie list.
3. Search for a person in the movie list.
4. Print out all people currently going to the movie.
5. Close the list.
3
Who do you want to check to see is in the list?
Jimmy
Sorry, Jimmy is NOT on the movie list right now.

Please select one of the following menu options.
1. Add a person to the movie list.
2. Delete a person from the movie list.
3. Search for a person in the movie list.
4. Print out all people currently going to the movie.
5. Close the list.
3
Who do you want to check to see is in the list?
Sarah
Great, Sarah is going to the movie so far.

Please select one of the following menu options.
1. Add a person to the movie list.
2. Delete a person from the movie list.
3. Search for a person in the movie list.
4. Print out all people currently going to the movie.
5. Close the list.
5

Here is the final list of people going to the movie:
['John', 'Sarah']