APS106 - Practice Problems

Week 2 Practice Problems

#1. Write a function that takes in a three-digit integer and returns the "flipped" version (that is, with its digits reversed). For example:

> Enter a positive number less than 1000: **177**
> That number flipped is 771

Your function should take the user-input integer as an argument and return the flipped integer. That means all your input and output with the user should be in your "main" code, not in the function.

Hint: Represent the user's input as an integer and use the arithmetic operators // and % to do it.

Make sure it works if the user enters a one- or two-digit integer. For example, 37 flipped is 730, and 8 flipped is 800.

#2. Write a function that takes in a positive integer and prints the minimum number of quarters, dimes, nickels, and pennies needed to make up that amount. For example:

> Enter a number of cents: **67**
>
> 2 quarter(s), 1 dime(s), 1 nickel(s), 2 penny(ies)

The prompt for the user should be outside the function but the printing should be inside the function.

In case you are not familiar with Canadian currency:
- a quarter is 25 cents
- a dime is 10 cents
- a nickel is 5 cents
- a penny is 1 cent

Use the minimum number of coins that you can by first maximizing the number of quarters, then the number of dimes, etc.

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#3. Write a program that asks a user for a floating-point number and then prints two values: the number truncated to the first decimal place and the number rounded to the first decimal place. For example:

>   Enter a number: **4.158**
>   Truncated to one decimal place: 4.1
>   Rounded to one decimal place: 4.2

Hint: Have a look at the math module.

#4. Write a little trigonometry program. Ask a user for an angle, specified in degrees. Then print the sine, cosine, and tangent of that angle.   For example:

>   Enter an angle: **60.**
>   sin(60.00) is 0.866025
>   cos(60.00) is 0.500000
>   tan(60.00) is 1.732051

#5. Write a function that takes a positive integer input less than 100000 and returns an integer corresponding to the number of digits in the number. Use this function in a program that prompts the user for an integer and prints the number of digits in the user's input. All input and output to the user should be outside the function.

Note: there are a number of ways to solve this problem. It is pretty easy if you do it with a string. You should also try it directly with an integer. Don't use an if-statement (that is for next week).