University of Strathclyde Glasgow

Python: Using variables

1. Write a program that includes two integer variables. Create a third integer variable by assigning it the result of multiplying the first two variables. The program should print the value of all three variables.
2. Write a program that contains a list that contains several numbers as separate elements. Print the contents of the list, sort the list and then print the list again.
3. Write a program that contains a floating point variable, which is the radius of a circle. The program should use the `math` library to calculate the area of the circle. The area of the circle is given by:

$$a = \pi r^2$$

   where a is the area, π is available in the `math` library as `math.pi` and r is the radius. The square of a r can be calculating by using `math.pow(r,2)` or `r**2`. The program should print the radius and the area.
4. Write a program that contains a dictionary of author names and citations. The key should be the author name and the values should be the number of citations. Print out the citations for two of the authors.
5. Write a program that contains two integer variables, where the first one contains 3 and the second one contains 2. Divide the first variable by the second variable and assign the result to a new variable. Check the type of the third variable by using `print(type(result))`, where `result` contains the result of the division.
6. Write a program that contains two string variables. Print the first two characters of the first string variable. Create a new string variable by combining the first two characters from the first string variable with the first two characters from the second variable. Print the values of the three string variables.
7. Write a program that contains an integer variable and a string variable. Use the `str` function to cast the value of the integer variable to a string. Then append the string version of the integer variable to the string variable and print the result.
8. Write a program that contains a string variable and a floating point variable. Store `"2.5"` in the string variable. Use the `float` function to cast the string variable to a float. Then add the float value of the string variable to the float variable. Print the result of the addition and the contents of the two input variables.
9. Write a program that contains a string variable. Store `"2n"` in the string variable. Use the `int` function to attempt to cast the string value to an integer. Comment on what happens.
10. Write a program that contains a list, which contains two elements that are also lists. Then print the contents of the list.
11. Write a program that contains a dictionary, which contains two key and value pairs, where the values are lists. Then print the contents of the dictionary.
12. Write a program that contains a dictionary. Then try to get a value, using a key that does not exist. Comment on what happens.

13. Write a program that contains a list. Try to access a list element, using an index that does not exist in the list. Comment on what happens.