

# Question set

## Variables:

1. Write a Python program that declares two variables, `x` and `y`, and swaps their values without using a third variable.
  2. Create a Python program that calculates the area of a rectangle using variables for length and width entered by the user.
  3. Write a Python program that converts temperature from Celsius to Fahrenheit using variables.
  4. Create a Python program that takes the radius of a circle as input and calculates its circumference using variables.
  5. Write a Python program that calculates the simple interest using principal amount, rate, and time entered by the user using variables.
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## Numbers (Integers, Floats):

1. Write a Python program that takes two numbers as input and prints their sum, difference, product, and quotient.
  2. Create a Python program that calculates the square of a given number using exponentiation.
  3. Write a Python program that calculates the average of three numbers entered by the user.
  4. Create a Python program that checks if a given number is even or odd and prints the result.
  5. Write a Python program that calculates the area of a circle given its radius using the math module for the value of  $\pi$ .
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## Strings:

1. Write a Python program that takes a string as input and prints its length.
  2. Create a Python program that takes a string as input and prints it in reverse.
  3. Write a Python program that checks if a given string is a palindrome.
  4. Create a Python program that counts the number of vowels and consonants in a given string.
  5. Write a Python program that takes two strings as input and concatenates them.
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### **Lists:**

1. Write a Python program that creates a list of numbers and prints the sum of all the elements.
  2. Create a Python program that takes a list of numbers as input and prints the largest and smallest elements.
  3. Write a Python program that takes a list of strings as input and prints the longest and shortest strings.
  4. Create a Python program that reverses a given list.
  5. Write a Python program that removes duplicates from a list.
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### **If Else**

1. Write a Python script that takes a user's input of a number and prints "Positive" if it's greater than zero, "Negative" if it's less than zero, and "Zero" if it's equal to zero.
2. Create a Python function that takes two numbers as input and returns the larger number using if-else statements.
3. Write a Python script that takes a user's input of an age and prints "Child" if the age is less than 18, and "Adult" if it's 18 or older.
4. Create a Python function that takes a year as input and prints "Leap year" if it's divisible by 4, otherwise prints "Not a leap year" using if-else statements.

5. Write a Python script that takes a user's input of a temperature in Celsius and prints "Freezing" if it's below 0°C, "Normal" if it's between 0°C and 25°C, and "Hot" if it's above 25°C.
6. Create a Python function that takes three numbers as input and returns the smallest number using if-else statements.
7. Write a Python script that takes a user's input of a string and prints "Long" if the length of the string is greater than 10 characters, otherwise prints "Short".
8. Create a Python function that takes a grade (A, B, C, D, F) as input and prints "Pass" if the grade is A, B, or C, otherwise prints "Fail".
9. Write a Python script that takes a user's input of two numbers and prints "Even" if both numbers are even, "Odd" if both numbers are odd, and "Mixed" otherwise.
10. Create a Python function that takes a list of integers as input and prints "Increasing" if the numbers are in increasing order, "Decreasing" if they're in decreasing order, and "Unordered" otherwise.