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| Question 1: |
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| Write a program that calculates and prints the value according to the given formula: |
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| Q = Square root of [(2 \* C \* D)/H] |
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| Following are the fixed values of C and H: |
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| C is 50. H is 30. |
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| D is the variable whose values should be input to your program in a comma-separated sequence. |
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| Example |
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| Let us assume the following comma separated input sequence is given to the program: |
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| 100,150,180 |
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| The output of the program should be: |
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18,22,24

import math  
def calc(c=50,h=30,d=0):  
 s=2\*c\*d  
 return math.sqrt(s/h)  
print(calc(50,30,100))  
print(calc(50,30,150))  
print(calc(50,30,180))

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| Question 2: |
| Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be i\*j. | |
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| Note: i=0,1.., X-1; j=0,1,¡­Y-1. |
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| Example |
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| Suppose the following inputs are given to the program: |
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| 3,5 |
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| Then, the output of the program should be: |
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| [[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]] |
|  |
| Answer=  def array(a,b):  l=[]  for i in range(a):  r=[]  for j in range(b):  v=r.append(i\*j)  l.append(v)  print()  return l,r print(array(4,5)) |

Question 3:

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| Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically. |
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| Suppose the following input is supplied to the program: |
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| without,hello,bag,world |
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| Then, the output should be: |
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bag,hello,without,world

n=int(input())  
l=[]  
for i in range(n):  
 l.append(input())  
 l.sort()  
l

Question 4:

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| Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically. |
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| Suppose the following input is supplied to the program: |
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| hello world and practice makes perfect and hello world again |
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| Then, the output should be: |
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again and hello makes perfect practice world

s=input()  
a=s.split()  
b=set(a)  
c=list(b)  
c.sort()  
c  
" ".join([str(i) for i in c])

Question 5:

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| Write a program that accepts a sentence and calculate the number of letters and digits. |
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| Suppose the following input is supplied to the program: |
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| hello world! 123 |
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| Then, the output should be: |
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| LETTERS 10 |
|  |

DIGITS 3

Answer=

a=input("Enter a letter ")  
l,d=0,0  
for i in a:  
 if i.isalpha():  
 l+=1  
 elif i.isdigit():  
 d+=1  
 else:  
 pass  
print("Letter",l)  
print("Digit",d)

Question 6:

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| A website requires the users to input username and password to register. Write a program to check the validity of password input by users. |
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| Following are the criteria for checking the password: |
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| 1. At least 1 letter between [a-z] |
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| 2. At least 1 number between [0-9] |
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| --- |
| 1. At least 1 letter between [A-Z] |
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| --- |
| 3. At least 1 character from [$#@] |
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| --- |
| 4. Minimum length of transaction password: 6 |
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| 5. Maximum length of transaction password: 12 |
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| Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma. |
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| Example |
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| If the following passwords are given as input to the program: |
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| ABd1234@1,a F1#,2w3E\*,2We3345 |
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| Then, the output of the program should be: |
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ABd1234@1

Answer=

import random  
letters = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r', 's', 't', 'u', 'v', 'w', 'x', 'y', 'z', 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z']  
numbers = ['0', '1', '2', '3', '4', '5', '6', '7', '8', '9','!', '#', '$', '%', '&', '(', ')', '\*', '+']  
print("Welcome to the PyPassword Generator!")  
min= int(input("How many letters would you like in your password?\n"))  
max = int(input(f"How many symbols would you like?\n"))  
password=""  
if min<6 and max>12:  
 for i in range(1,min+1):  
 password+=random.choice(letters)  
  
 for i in range(1,max+1):  
 password+=random.choice(numbers)  
 print(password)