Structure Related Problems

(Total 13 questions)

<table>
<tr><th>SL</th><th>Problem statement</th><th>Difficulty levels</th></tr>
<tr><td>1.</td><td>Write a program (WAP) to take as input the name, student ID and CGPA of a student, and prints it.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>Mr. A
011131144
3.86</td><td>Name: Mr. A
Student ID: 011131144
CGPA: 3.86</td></tr></table></td><td>*</td></tr>
<tr><td>2.</td><td>WAP to take as input names, student IDs and CGPA of n students, and print them.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>3
Mr. A
011131144
3.86
Mr. B
011131155
3.76
Mr. C
011131166
3.66</td><td>Student 1: Mr. A
Student ID: 011131144
CGPA: 3.86
Student 2: Mr. B
Student ID: 011131155
CGPA: 3.76
Student 3: Mr. C
Student ID: 011131166
CGPA: 3.66</td></tr></table></td><td>*</td></tr>
<tr><td>3.</td><td>WAP to take as input the 2D coordinates (x,y) of two points and calculate the distance between them.

<table><tr><th>Sample input</th><th>Sample output</th></tr><tr><td>0 0
3 4</td><td>The distance is 5.00 unit</td></tr><tr><td>1 2
2 3</td><td>The distance is 1.41 unit</td></tr></table></td><td>*</td></tr>
</table>

4. WAP to take as input the 2D coordinates (x,y) of three points and calculate the area of the triangle with the points taken as vertices. If no such triangle is possible, print "They are in the same line". *

Sample input	Sample output
0 0 0 3 3 4	The area is 6.00 unit
0 0 2 3 8 12	They are in the same line

5. WAP to take as input the real and imaginary parts of a complex number, and print it in a+bi form. *

Sample input	Sample output
5 6	5.00+6.00i
5 -6	5.00-6.00i

6. WAP to take as input the real and imaginary parts of a complex number, and calculate its modulus and argument. **

Sample input	Sample output
3 4	Modulus = 5.0000 Argument = 0.9272

7. WAP to take as input two complex numbers, and add and subtract them. *

Sample input	Sample output
3 4 5 -2	(3+4i)+(5-2i)=8+2i (3+4i)-(5-2i)=-2+6i

8. WAP to take as input two complex numbers, and multiply them. **

Sample input	Sample output
3 4 5 -2	(3+4i)*(5-2i)=23+14i

9. WAP to take as input two complex numbers and divide them. **

Sample input	Sample output
3 4 5 -2	(3+4i)/(5-2i) = 0.24+0.89i

10. WAP to take as input the meter and centimeter components of a length, and show the length in meter and in centimeter. *

Sample input	Sample output
3 15	Length in meter: 3.15 Length in centimeter: 315

11. WAP to take as input two lengths as their meter and centimeter components, and calculate their sum **without calculating total meter and centimeter length**. (e.g. to add 3m 33cm and 7m 70cm, you cannot add 3.33m and 7.7m. You have to add the components individually) **

Sample input	Sample output
3 33 7 70	The sum is 11 meter 3 centimeter

12. WAP to take as input the hour, minute and second components of a time interval, and show the time interval in hour, in minute and in second. **

Sample input	Sample output
3 45 48	Time interval in hour: 3.76 Time interval in minute: 225.80 Time interval in second: 13584

13. WAP to take as input the hour, minute and second components of two times of a day, and find out their difference (assume the latest time is given first). ***

Sample input	Sample output
3 45 48 1 55 50	1 49 58