Problem 1:

In this problem, your input is a **real number** x, which represents an angle in **degree**. You need to apply the following series expansion to compute the value of a series:**sin(*x*)**. Use the first 100 items from the infinite series. Print 6 digits after the decimal point in your output. The expansion of the series is as follows (where *x*is expressed in **radian**):

$$\sin x = x - \frac{1}{6}x^3 + \frac{1}{120}x^5 - \frac{1}{5040}x^7 + \ldots \text{ for } -\infty < x < \infty$$

See the following example (minor precision error would be acceptable):

Sample input	**Corresponding outputs**
0	0.000000
90	1.000000
30	0.500000
50	0.766044

Problem 2:

Given **an input integer n**, you need to draw the following shapes using stars (*) and dashes (-).

Sample input	**Corresponding outputs**

4	---------
	| * |
	| *-* |
	| *---* |
	|*-----*|
	  --- 	
	  -
	  *

5	----------
	| * |
	| *-* |
	| *---* |
	| *-----* |
	|*-------*|
	  ----- 	
	  --- 	
	  -
	  *

1	--- |*|

Problem 3:

Write a C program that will take a number as in put and print the following.

If the number is divisible by 3 and 7 print “TS”

If the number is divisible by only 3 print “T”

If the number is divisible by only 7 print “S”

Other print “None ”

You can only switch case statements.

Sample input	**Corresponding outputs**
21	TS
9	T
13	None
14	S