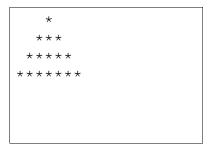## Winter 2016
Practice Questions

Here are some practice questions to test your C abilities

1. Write a program that display an isosceles triangle that made of '*'. The program reads an integer from the standard input. Then it display on the standard output a triangle with the base equal to *n* *'s. The row above that have *n*-2 *'s and so on until the first row contains either 1 or 2 *'s (depending on *n* being odd or even.
   The figure below shows the triangle with *n* =7.

```
   *
  * * *
 * * * * *
* * * * * *
```

2. Write a program that displays a rectangle on the screen. The program reads from the standard input three parameters, width, height, and a character. Them it display a rectangle with width and height using the character read. For example, if the input 7 5 x. The output should be

```
xxxxxxx
x     x
x     x
x     x
xxxxxxx
```

3. Write a program that encodes a message. The message is read from the standard input. The key is an integer (*k*). The program arranges the message in a r-by-K rectangle. Then the program displays the message column by column. For example if the key is 11, the message is

If you are looking for ransom, I can tell you I don't have money. But what I do have are a very particular set of skills, skills I have acquired over a very long career. Skills that make me a nightmare for people like you\n

The program arranges it in a x-by-~~11~~ (22) matrix (the number of columns is ~~11~~ 22)

```
If you are looking for
 ransom, I can tell yo
u I don't have money.
But what I do have are
 a very particular set
 of skills, skills I h
ave acquired over a ve
ry long career. Skills
 that make me a nightm
are for people like yo
u\n
```

Then, the output is displayed column by column

```
I uB  ar aufr uaovytr
 aIt fe and so on
```
4. Can you think of a decoder program for the previous encoder?