

# Triangle Patterns

This document challenges you to create different patterns by writing a corresponding C program. Assume all input to N is an odd number (it looks better if the input value is odd).

**Hint:** Observe carefully on each triangle; and correlate one triangle to another triangle of the same pattern – see if there is any observations that might assist you in writing C programs for it 😊 For me, I find it easier to conceptualise the solution if I use functions with parameter passing 😊. Each pattern is independent from other patterns. Hopefully at the end of this activity, you will have a good understanding on how iteration works and what makes a particular action or statement iterates.

Pattern#1

N = 3	N = 5	N = 7	N = 9
* ** ***	* ** *** **** *****	* ** *** **** ***** ***** *****	* ** *** **** ***** ***** ***** ***** *****

Pattern#2:

N = 3	N = 5	N = 7	N = 9
1 *2 **3	1 *2 **3 ***4 ****5	1 *2 **3 ***4 ****5 *****6 *****7	1 *2 **3 ***4 ****5 *****6 *****7 *****8 *****9

Pattern#3:

N = 3	N = 5	N = 7	N = 9
1 22 333	1 22 333 4444 55555	1 22 333 4444 55555 666666 7777777	1 22 333 4444 55555 666666 7777777 88888888 999999999

Pattern#4:

N = 3	N = 5	N = 7	N = 9
1 23 456	1 23 456 7890 12345	1 23 456 7890 12345 678901 2345678	1 23 456 7890 12345 678901 2345678 90123456 789012345

Pattern#5

N = 3	N = 5	N = 7	N = 9
* ** ***	* ** *** **** *****	* ** *** **** ***** ***** *****	* ** *** **** ***** ***** ***** ***** ***** *****

Pattern#6

N = 3	N = 5	N = 7	N = 9
* *** *****	* *** ***** ***** *****	* *** ***** ***** ***** ***** *****	* *** ***** ***** ***** ***** ***** ***** *****

Pattern#7

N = 3	N = 5	N = 7	N = 9
1 222 33333	1 222 33333 4444444 555555555	1 222 33333 4444444 555555555 66666666666 7777777777777	1 222 33333 4444444 555555555 66666666666 7777777777777 888888888888888 9999999999999999

Pattern#8

N = 3	N = 5	N = 7	N = 9
1 234 56789	1 234 56789 0123456 789012345	1 234 56789 0123456 789012345 67890123456 7890123456789	1 234 56789 0123456 789012345 67890123456 7890123456789 012345678901234 56789012345678901

Pattern#9

N = 3	N = 5	N = 7	N = 9
<pre>       *      *A*     *A*A* </pre>	<pre>       *      *A*     *A*A*    *A*A*A*   *A*A*A*A*  *A*A*A*A*A* </pre>	<pre>       *      *A*     *A*A*    *A*A*A*   *A*A*A*A*  *A*A*A*A*A* *A*A*A*A*A*A* </pre>	<pre>       *      *A*     *A*A*    *A*A*A*   *A*A*A*A*  *A*A*A*A*A* *A*A*A*A*A*A* *A*A*A*A*A*A*A* *A*A*A*A*A*A*A*A* </pre>

Pattern#10

N = 3	N = 5	N = 7	N = 9
<pre> *****  ***   * </pre>	<pre> *****  *****   *****    *****     *****      *****       * </pre>	<pre> *****  *****   *****    *****     *****      *****       *****        * </pre>	<pre> *****  *****   *****    *****     *****      *****       *****        *****         *****          *****           * </pre>

Pattern#11

N = 3	N = 5	N = 7	N = 9
<pre> *** *** *** </pre>	<pre> ***** ***** ***** ***** ***** </pre>	<pre> ***** ***** ***** ***** ***** ***** ***** </pre>	<pre> ***** ***** ***** ***** ***** ***** ***** ***** ***** </pre>

Pattern#12

N = 3	N = 5	N = 7	N = 9
*** * * ***	***** *   * *   * *   * *****	***** *   * *   * *   * *   * *   * *****	***** *   *   * *   *   * *   *   * *   *   * *   *   * *   *   * *****

Pattern#13

N = 3	N = 5	N = 7	N = 9
*** * ***	***** *   *   * * *   *   * *****	***** ***** *   *   * * *   *   * ***** *****	***** ***** ***** *   *   * * *   *   * ***** ***** ***** ***** *****

Pattern#14

N = 3	N = 5	N = 7	N = 9
*** 0*1 ***	***** 0***1 23*45 6***7 *****	***** 0*****1 23***45 678*901 23***45 6*****7 *****	***** 0*****1 23*****45 678***901 2345*6789 012***345 67*****89 0*****1 *****

*Merry  
Christmas*