

# C2: Diamonds

## Centered Triangles

The picture we want to print out is a centered triangle based on the number of lines.

Lines? 4  
 \*  
 \*\*\*  
 \*\*\*\*\*  
 \*\*\*\*\*\*\*\*\*

Lines? 5  
 \*  
 \*\*\*  
 \*\*\*\*\*  
 \*\*\*\*\*\*\*\*\*  
 \*\*\*\*\*\*\*\*\*\*

Lines? 2  
 \*  
 \*\*\*

Further analysis shows:

The initial number of spaces is the number of lines - 1.

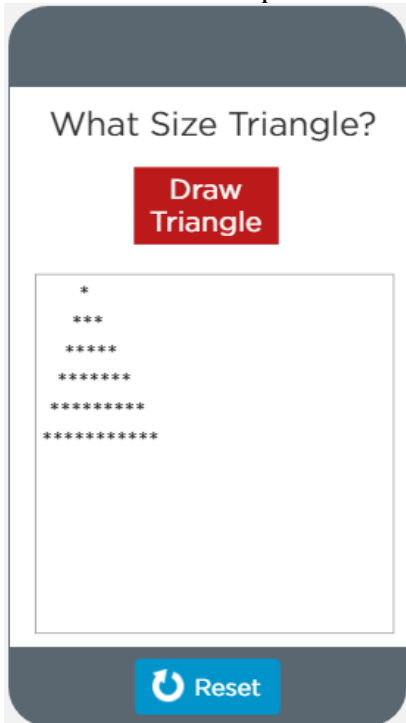
1	2	3	*			
		*	*	*		
	*	*	*	*	*	
*	*	*	*	*	*	*

The number of stars is the (line number \* 2) - 1

			*			
		*	*	*		
	*	*	*	*	*	
*	*	*	*	*	*	*

line 1 = (1\*2 - 1) = 1 star  
 line 2 = (2\*2 - 1) = 3 stars  
 line 3 = (3\*2 - 1) = 5 stars  
 line 4 = (4\*2 - 1) = 7 stars

This is the code required:



```

onEvent(▼ "draw", ▼ "click", function(event) {
  var howmany = promptNum("How big? ");
  var spaces = howmany-1;
  for (var i = 1; i <= howmany; i++) {
    var line = "";
    for (var k = 1; k <= spaces; k++) {
      line = line+" ";
    }
    spaces--;
    for (var j = 1; j <= (2*i-1); j++) {
      line = line+"*";
    }
    line = line+"\n";
    setText(▼ "output", (getText(▼ "output")+" ") +line);
  }
}
  
```

Annotations in the code block:

- `repeat for the lines required` points to the `for (var i = 1; i <= howmany; i++)` loop.
- `print spaces` points to the inner loop `for (var k = 1; k <= spaces; k++)`.
- `decrease for next line` points to `spaces--;`.
- `print stars` points to the inner loop `for (var j = 1; j <= (2*i-1); j++)`.
- `move down a line` points to `line = line+"\n";`.
- `put out new line` points to `setText(▼ "output", (getText(▼ "output")+" ") +line);`.

Your assignment:

Make an app that prints out a diamond. The lines will still refer to the lines of the triangle on the top.

Lines? 4

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

Lines? 5

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

Lines? 2

```
  *
 ***
  *
```