

## Practical IB Computer Science Test #1

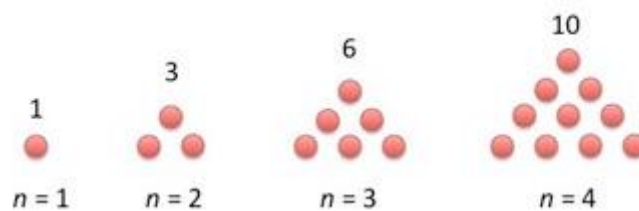
Name: \_\_\_\_\_ Date: \_\_\_\_\_

### Triangular Sequence

Your program will calculate and print out a term or terms of the triangular sequence. For example, the first terms of the sequence are

1, 3, 6, 10, 15, 21, 28, 36, 45, 55, ...

These are numbers you get by adding consecutive numbers starting with  $1+2=3$ ,  $3+3=6$ ,  $6+4=10$ ,  $10+5=15$ ,  $15+6=21$  and so on.



( [Lesson 3 – Identifying Square And Triangular Numbers. – BRILLIANT MATHS](#) )

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Work through the test from the beginning. Your program should build and grow –do not start a new program for each point. During this test, you may use any resources that you have created, but you may **not** use Internet. You may use our online class resources.

<b>Instructions</b>	<b>Program Display</b>
1. Output your name on the screen.	<i>Darth Vader</i>
2. Input a number " <i>n</i> ".	<i>Calculate up to term (n)? <u>6</u></i>
3. Output an error message if the number is negative.	<i>Calculate up to term (n)? <u>-5</u> Error- enter a positive number.</i>
4. Only accept inputs of a positive number. Repeat input until an acceptable number is entered.	<i>Calculate up to term (n)? <u>-5</u> Error- enter a positive number. Calculate up to term (n)? <u>10</u></i>
5. Calculate up to term <i>n</i> of the triangular sequence. Example shows output for <i>n</i> = 10 (remember <i>n</i> starts from 0).	<i>Calculate up to term (n)? <u>10</u> 1 3 6 10 15 21 28 36 45 55</i>
6. Output the sequence as a comma-separated list. Example shows output for <i>n</i> = 20.	<i>1, 3, 6, 10, 15, 21, 28, 36, 45, 55, 66, 78, 91, 105, 120, 136, 153, 171, 190, 210</i>
7. Output only term <i>n</i> of the sequence, if <i>n</i> > 20.	<i>Calculate up to term (n)? <u>60</u> Term 50: 1830</i>
8. Calculate and output the average of <i>n</i> terms of the sequence.	<i>Calculate up to term (n)? 5 0; 1; 1; 2; 3; 5 Average = 7.0</i>
9. Make the program repeat until zero is input.	<i>Calculate up to term (n)? 5 1, 3, 6, 10, 15 Average = 7.0  Calculate up to term (n)? 4 1, 3, 6, 10 Average = 5.0  10 has 2 digits Calculate up to term (n)? 0</i>
10. Count how many digits the term has and output the result.	<i>Calculate up to term (n)? 50 1275 Average = 442.0  1275 has 4 digits</i>

Submit your Java source code file to the corresponding online homework entry when you are done / before the end of the period. Good luck!