Maximum path sum[1]

By starting at the top of the triangle below and moving to adjacent numbers on the row below, the maximum total from top to bottom is 23.

$$
\begin{array}{ccccccc}
 & & & \mathbf{3} & & & \\
 & & \mathbf{7} & & 4 & & \\
 & 2 & & \mathbf{4} & & 6 & \\
8 & & 5 & & \mathbf{9} & & 3
\end{array}
$$

That is, 3 + 7 + 4 + 9 = 23.

Part 1: Find the maximum total from top to bottom of the triangle below.

```
                    75
                  95 64
                17 47 82
              18 35 87 10
            20 04 82 47 65
          19 01 23 75 03 34
        88 02 77 73 07 63 67
      99 65 04 28 06 16 70 92
    41 41 26 56 83 40 80 70 33
  41 48 72 33 47 32 37 16 94 29
 53 71 44 65 25 43 91 52 97 51 14
70 11 33 28 77 73 17 78 39 68 17 57
91 71 52 38 17 14 91 43 58 50 27 29 48
63 66 04 68 89 53 67 30 73 16 69 87 40 31
04 62 98 27 23 09 70 98 73 93 38 53 60 04 23
```

NOTE: As there are only 16384 routes, it is possible to solve this problem by trying every route. However, Part2 is the same challenge with a triangle containing one-hundred rows; it cannot be solved by brute force, and requires a clever method!

Part 2: Find the maximum total from top to bottom in triangle.txt a 15K text file containing a triangle with one-hundred rows.

NOTE: It is not possible to try every route to solve this problem, as there are 2^{99} altogether! If you could check one trillion (10^{12}) routes every second it would take over twenty billion years to check them all. There is an efficient algorithm to solve it.

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[1] These problem have been taken from Projekt Euler