



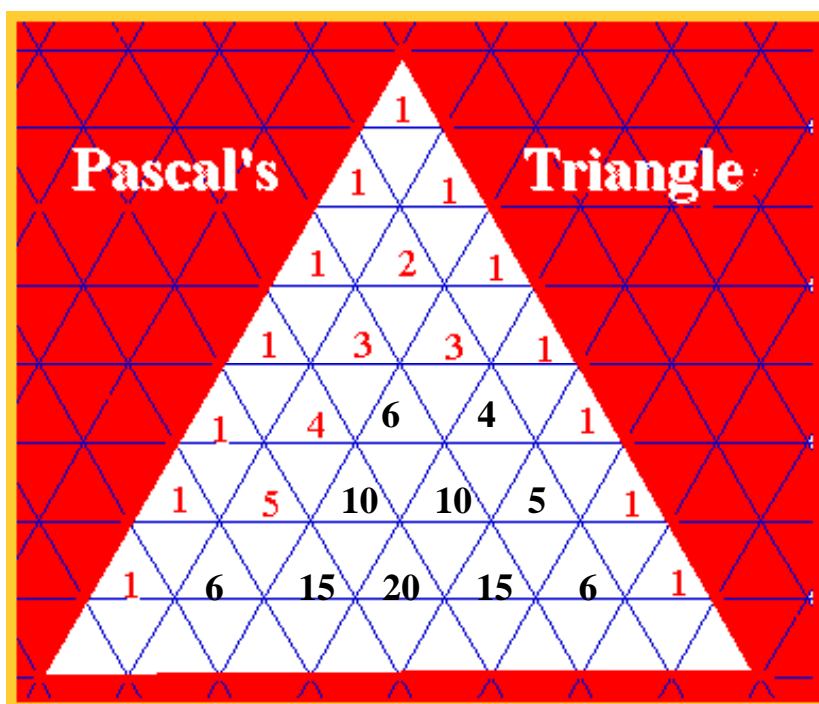
Pattern #2:

*In each row, the total number of paths is a power of 2 for that row.  
For example, the third row has 2<sup>3</sup> or 8 possible paths. This makes a convenient tool to predict any given set of possible paths by simply knowing the level of the triangle.*

Pattern #3:

*Each row presents the number of paths available to the lower level;  
this becomes the probability when this is compared to the level and its power of 2.*

3. Copy out the 6 rows of Pascal's Triangle that you see on your screen. Can you complete the 7<sup>th</sup> on your own?



**OFF COMPUTER EXERCISES**

1. Now, based on your knowledge of the various patterns found in Pascal’s triangle, reproduce the first 6 rows of Pascal's Triangle without looking at your SUMMARY notes.

Row 1:  $1 \quad 1$

Row 2:  $1 \quad 2 \quad 1$

Row 3:  $1 \quad 3 \quad 3 \quad 1$

Row 4:  $1 \quad 4 \quad 6 \quad 4 \quad 1$

Row 5:  $1 \quad 5 \quad 10 \quad 10 \quad 5 \quad 1$

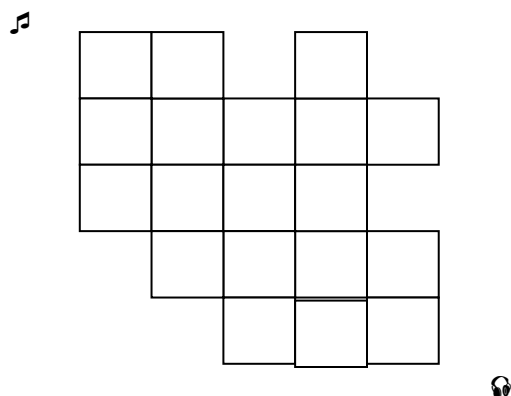
Row 6:  $1 \quad 6 \quad 15 \quad 20 \quad 15 \quad 6 \quad 1$

Row 7:  $1 \quad 7 \quad 21 \quad 35 \quad 35 \quad 21 \quad 7 \quad 1$

Row 8:  $1 \quad 8 \quad 28 \quad 56 \quad 70 \quad 56 \quad 28 \quad 8 \quad 1$

2. Fill in rows 7 and 8 of Pascal's Triangle in the remaining space above.

3. In how many ways can the music note get to the headphones if the music note can only travel on the black lines of the grid?



*There are 252 possible paths for the music to get to the headphones.  
Mid-points of triangle .... 2, 6, 20, 70, 252*