

# Using Pascal's Triangle

## Contemporary Math (MAT-130)

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Row Number	Pascal's Triangle										
0	1										
1	1 1										
2	1 2 1										
3	1 3 3 1										
4	1 4 6 4 1										
5	1 5 10 10 5 1										
6	1 6 15 20 15 6 1										
7	1 7 21 35 35 21 7 1										
8	1 8 28 56 70 56 28 8 1										
9	1 9 36 84 126 126 84 36 9 1										
10	1 10 45 120 210 252 210 120 45 10 1										

Use Pascal's triangle to find each combination value

- ${}_4C_2$
- ${}_8C_6$
- ${}_7C_3$
- ${}_0C_0$
- ${}_{10}C_7$
- ${}_5C_1$

Jim is trying to find the bursar's office at Bergen Community College so he can pay his bill. He knows the room number but he can't remember what wing of the Pitkin Education center it is in. Jim only has enough time to check three of the eight wings before the bursar will be closed.

- How many different wing selections can Jim make?
- How many of the sections from problem 7 will include the correct wing?
- How many of the sections from problem 7 will not include the correct wing?

Use Pascal's triangle to solve each problem

- Locate the series of triangular numbers in Pascal's triangle above.
- What is the 5<sup>th</sup> triangular number?
- What is the 7<sup>th</sup> triangular number?
- What is the 9<sup>th</sup> triangular number?
- How many subsets of the set  $\{a, b, c, d, e, f, g\}$  contain four elements?
- How many ways are there for a group of eight people to pick two co-presidents?
- How many six member committees can be formed from a club of nine people?
- A committee consists of five men and five women. They want to form a subcommittee of two men and two women. How many such committees can be formed?

Henry and Taylor flip six identical coins at the same time. If there are more heads than tails Henry wins. If there are more tails than heads Taylor wins. If there are equal amounts of heads and tails they tie.

- How many ways are there for Henry to win?
- How many ways are there for Taylor to win?
- How many ways are there for them to tie?

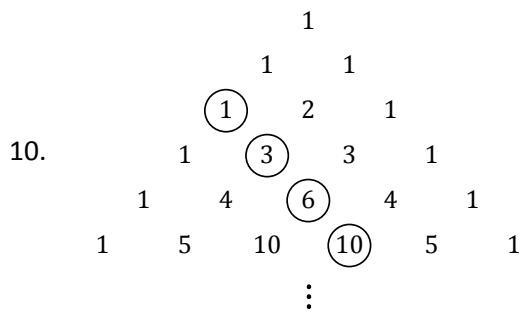
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### Solutions:

1. 6
2. 28
3. 35
4. 1
5. 120
6. 5
7. 56
8. 21
9. 35



11. 15
12. 28
13. 45
14. 35
15. 28
16. 84
17. 100
18. 22
19. 22
20. 20