

Combinations

A combination is an arrangement in which order does not matter matters.

$${}_n\mathbf{C}_r = \frac{n!}{(n-r)! r!}$$

Example: Find ${}_5\mathbf{C}_2$

$${}_5\mathbf{C}_2 = \frac{5!}{(5-2)! 2!} = \frac{5!}{3! \cdot 2!} = \frac{5 \cdot 4}{2 \cdot 1} = 10$$

Find the following

1. ${}_{10}\mathbf{C}_2$

2. ${}_5\mathbf{C}_3$

3. ${}_6\mathbf{C}_3$

4. ${}_7\mathbf{C}_2$

5. ${}_{10}\mathbf{C}_6$

6. ${}_5\mathbf{C}_4$

7. ${}_5\mathbf{C}_5$

8. ${}_3\mathbf{C}_2$

9. ${}_7\mathbf{C}_3$

10. ${}_{10}\mathbf{C}_2$

11. ${}_4\mathbf{C}_3$

12. ${}_3\mathbf{C}_3$