Combinations Ex 17.1 Q2

$$^{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Hence $n = n$

$r = 12$ and 5

Applying formula

$^{n}C_{p} = {}^{n}C_{q} = n$

Then $p + q = n$

$\Rightarrow \quad {}^{n}C_{12} = {}^{n}C_{5}$

$12 + 5 = n$

$\Rightarrow \quad n = 17$

Combinations Ex 17.1 Q3

If $^{n}C_{p} = {}^{n}C_{q}$

Then $p + q = n$

Also $^{n}C_{r} = \dfrac{n!}{r!(n-r)!}$ ....(i)

$\Rightarrow \quad {}^{n}C_{4} = {}^{n}C_{6}$

$4 + 6 = n$

$\Rightarrow \quad n = 10$

then $^{12}C_{n} = {}^{12}C_{10}$

Applying (i)

$$^{12}C_{10} = \frac{12!}{10!\,2!}$$

$$= \frac{12 \times 11 \times 10!}{10! \times 2 \times 1}$$

$$= \frac{12 \times 11}{2 \times 1} = 66$$

Combinations Ex 17.1 Q4

If ${}^{n}C_{p} = {}^{n}C_{q}$

Then $p + q = n$

$\Rightarrow \quad {}^{n}C_{10} = {}^{n}C_{12}$

$10 + 12 = n$

$\Rightarrow \quad n = 22$

Find ${}^{23}C_{n}$

$\Rightarrow \quad {}^{23}C_{22}$

$$= \frac{23!}{22!\,1!}$$

$$= \frac{23 \times 22!}{22!}$$

$= 23$

Combinations Ex 17.1 Q5

If ${}^{n}C_{p} = {}^{n}C_{r}$ then $p + r = n$

$\therefore \quad x + 2x + 3 = 24$

$3x = 21$

$x = 7$

*********** END **********