

$$4) \frac{n!}{(n-2)!} = \frac{n \times (n-1)(n-2)!}{(n-2)!} = n(n-1) = n^2 - n$$

$$5) \frac{(2n)!}{(2n-3)! \times (n-1)}$$

$$\frac{2n \times (2n-1)(2n-2) \cancel{(2n-3)!}}{\cancel{(2n-3)!} \times (n-1)} = \frac{2n \times (2n-1) \times 2 \cancel{(n-1)}}{\cancel{n-1}} = 4n^2 - 2n$$