Fattoriali e coefficienti binomiali

risolvere le seguenti equazioni per n, facendo attenzione alle condizioni d'esistenza		
1	$\binom{n+2}{n} = 3$	$n = 1$
2	$\binom{n+1}{n} = 5$	$n = 4$
3	$\binom{n+2}{n+1} = 3!$	$n = 4$
4	$\binom{n+2}{n} - 2\binom{n+1}{n-1} = 0$	$n = 2$
5	$\binom{n+3}{n} - \binom{n+1}{n-2} = 5! + 1$	$n = 10$
6	$\binom{n-2}{n-4} + 2\binom{n+3}{n+1} = 13$	*impossibile*
7	$\sqrt{\binom{n+1}{n}} - \sqrt{\binom{n}{n+1}} = 0$	*impossibile*
8	$\binom{n-1}{n-2}\binom{n+1}{n} = 15$	$n = 4$
9	$-\left[\binom{n+1}{n}\right]^2 = \binom{n+1}{n-1} - 5$	$n = 1$
10	$\binom{n+3}{5} = \binom{n+3}{2}$	$n = 4$
11	$\binom{5}{n+2} = \binom{5}{3-n}$	$n = -2, -1, 0, 1, 2, 3$
12	$\binom{n}{2} = 3\binom{n}{3}$	$n = 3$
13	$n! = (n+1)!$	$n = 0$

calcolare, senza calcolatrice, i valori delle seguenti espressioni:		
14	$\binom{8}{6} + \binom{8}{7} + \binom{8}{8}$	37
15	$\frac{98!}{100!}\binom{100}{2}$	1/2
16	$\frac{\binom{10}{5} - 2\binom{4}{2}}{4!}$	10
17	$\binom{5}{4}\binom{4}{3}\binom{3}{2}\binom{2}{1} - 5!$	0
18	$3! - \binom{6}{3} + \binom{6}{4}$	1
19	$\binom{5}{\binom{\binom{5}{5}}{5}}$	*impossibile*