

Supp 5

1. (a) $\binom{5+10-1}{10} = \binom{14}{10}$
(b) $\binom{5+5-1}{5} = \binom{9}{5}$
(c) $\binom{5+8-1}{8} = \binom{12}{8}$
2. $\binom{4+14-1}{14} + \binom{4+13-1}{13} = \binom{17}{14} + \binom{16}{13}$
3. $\binom{4+20-1}{20} + \binom{24}{20}$
4. (a) $\binom{31}{12}$
(b) $\binom{31+12-1}{12} = \binom{42}{12}$
(c) $\binom{42}{12} - 31$
4. (a) 2^5
(b) 2^n
7. (a) $\binom{35}{32}$
(b) $\binom{31}{28}$
(c) $\binom{11}{8}$
(d) 1
(e) $\binom{43}{4}$
(f) $\binom{31}{28} - \binom{6}{3}$
8. $\binom{7}{5} \binom{6}{4}$
9. $230, 230 = \binom{n+20-1}{20} = \binom{n+19}{20} \Rightarrow n = 7$
10. $\binom{6+82-1}{82} = \binom{87}{82}$
11. (a) $\binom{14}{5}$
(b) $\binom{11}{5} + 3\binom{10}{4} + 3\binom{9}{2} + \binom{8}{2}$