MATH 1500
Section 5.7 HW Solutions: 3, 17, 21, 32, 37, 42, 45

3. $\binom{6}{2} = C(6, 2) = \frac{6 \cdot 5}{2 \cdot 1} = 15$

17. $\binom{6}{0} + \binom{6}{1} + \binom{6}{2} + \binom{6}{3} + \binom{6}{4} + \binom{6}{5} + \binom{6}{6}$

$= 2^6$

$= 64$

21. $\binom{10}{0} x^{10} + \binom{10}{1} x^9 y + \binom{10}{2} x^8 y^2$

$= x^{10} + 10x^9 y + 45x^8 y^2$

32. $\binom{8}{6} x^2 (-y)^6 + \binom{8}{7} x(-y)^7 + \binom{8}{8} (-y)^8$

$= 28x^2 y^6 + 8x(-y^7) + 1(y^8)$

$= 28x^2 y^6 - 8xy^7 + y^8$

37. $2^8 = 256$ subsets

42. For dressings, there are six choices, including no dressing.

There are $2^6 \cdot 6 = 384$ possible salads.

45. $2 \cdot 3 \cdot 2^{13} = 49{,}152$ types