

Applied Combinatorics

by Fred S. Roberts and Barry Tesman

Answers to Selected Exercises¹

Chapter 7

Section 7.1.

1. 65;

8. 15;

11. 6233;

14. $(7^9 - \binom{7}{1}(7-1)^9 + \binom{7}{2}(7-2)^9 \mp \cdots + \binom{7}{6}(7-6)^9 - 0) / 7^9$;

18(d). $P(G, x) = x^4 - 4x^3 + 5x^2 - 2x$;

21(a). 19;

21(b). 10;

21(c). 15;

26(b). 3 times;

28. 28;

29. 456;

34. $b_n = n! - \binom{n-1}{1}(n-1)! + \binom{n-1}{2}(n-2)! - \binom{n-1}{3}(n-3)! \pm \cdots + (-1)^{n-1} \binom{n-1}{n-1} 1!$.

Section 7.2.

1. 22%;

4. 7;

9. $\frac{1}{2}$;

11. $\binom{n}{m} D_{n-m}$;

12(a). $\frac{6}{16}$;

14(a). 630;

¹More solutions to come. Comments/Corrections would be appreciated and should be sent to: Barry Tesman (tesman@dickinson.edu) or Fred Roberts (froberts@dimacs.rutgers.edu).

18(a). $7/24$;

18(b). $1/24$;

18(c). $0/24$;

22. 512;

32. 9;

36. 11.