

6. Determine the inversion sequences of the following permutations of $\{1, 2, \dots, 8\}$:

(a) 35168274

6(a)

Answer: 2 4 0 4 0 0 1 0

7. Construct the permutations of $\{1, 2, \dots, 8\}$ whose inversion sequences are

(a) 2, 5, 5, 0, 2, 1, 1, 0 .

7(a) 2, 5, 5, 0, 2, 1, 1, 0

Answer: 4 8 1 6 5 7 2 3

15. For each of the following subsets of $\{x_7, x_6, \dots, x_1, x_0\}$, determine the subset that immediately follows it by using the base 2 arithmetic generating scheme:

(b) $\{x_7, x_5, x_3\}$

15(b) $\{x_7, x_5, x_3\}$

Answer: $\{x_7, x_5, x_2\}$

29. Determine the 7-subset of $\{1, 2, \dots, 15\}$ that immediately follows 1, 2, 4, 6, 8, 14, 15 in the lexicographic order. Then determine the 7-subset that immediately precedes 1, 2, 4, 6, 8, 14, 15.

29.

successor: 1, 2, 4, 6, 9, 10, 11

precede: 1, 2, 4, 6, 8, 13, 15

33. In which position does the subset 2489 occur in the lexicographic order of the 4-subsets of $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$?

33.

$$\text{Answer: } \binom{3}{8} + \binom{2}{6} + \binom{2}{5} = 81$$

$$1xxx : \binom{3}{8}$$

$$23xx : \binom{2}{6}$$

$$24xx : \binom{2}{5}$$