Çankaya University
Department of Computer Engineering

CENG 277 - Discrete Structures

Name-Surname: 02.10.2014

ID Number:

CLASSWORK 1

Find the number of integer solutions of the equation

$$x_1 + x_2 + x_3 + x_4 + x_5 = 17$$

such that

a) $0 \leqslant x_i$

b) $2 \leqslant x_i$

Answer:

a) Distribute 17 objects to 5 containers:

$$\binom{21}{17} = 5985$$

b) First, give 2 to each, then, distribute 7 objects to 5 containers:

$$\binom{11}{7} = 330$$

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CLASSWORK 1

Find the number of integer solutions of the equation

$$x_1 + x_2 + x_3 + x_4 = 11$$

such that

a) $0 \leqslant x_i$

b) $0 \leqslant x_i \leqslant 8$.

Answer:

a) Distribute 11 objects to 4 containers:

$$\binom{14}{11} = 364$$

b) Subtract the cases where one container gets 9 or more objects:

$$364 - 4\binom{5}{2} = 324$$