

H1 (1/1 point)

The solution number of non-negative integer solutions of $x+2y=10$ is:

6

Answer: 6

EXPLANATION

The coefficient of x^{10} in $G(x) = (1 + x + x^2 + x^3 + \dots) (1 + x^2 + x^4 + x^6 + \dots)$

It might be quite difficult to do the polynomial multiplication. Then you could enumerate the solutions by iteratively assigning the feasible value of y .

Final Check

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H2 (1/1 point)

Integer 5 is partitioned into orderly partitions which are made up by numbers 1,2,3,4. Such as (1+1+3, or 1+3+1 or 2+3, 4+1,...) How many different ways are there?

15

15

Answer: 15

EXPLANATION

The orderly partitions could be classified into 2-partition, 3-partition, 4-partition and 5-partition.

According to the orderly partitions shown discussed in the video, the partitioning way to partition n into the orderly sum of k numbers should be $C(n-1, k-1)$. Therefore, $n=5$, $k=2, 3, 4, 5$.

$$C(4,1)+C(4,2)+C(4,3)+C(4,4)=15$$

Final Check

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H3 (1/1 point)

Given the recurrence relation of Fibonacci sequence is $F(n)=F(n-1)+F(n-2)$, set $G(n)=F(2n)$, then the recurrence relation of $G(n)$ is:

$$G(n) = ______ G(n-1) + ______ G(n-2) + ______ G(n-3)$$

Please choose the coefficient value:

● 1,1,0

- ☐ 3,1,0
- ☐ 3,-1,1
- ☐ 3,1,1
- ☒ 3,-1,0 
- ☐ 1,1,1

EXPLANATION

$$G(n)=F(2n)=F(2n-1)+F(2n-2)=2F(2n-2)+F(2n-3)=3F(2n-2)-F(2n-4)=3G(n-1)-G(n-2)$$

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