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Help

H1 (1/1 point)

How many distinct four-digit numbers can be formed using only the digits 1, 2, 3, 4 and 5? Assume also that no digit may be used more than once. Please calculate the exact value.

Answer: 120**EXPLANATION**

Because every digit has to be different, so a four-digit number is simply some permutation of four digits selected from {1, 2, 3, 4, 5}, meaning that the total number is simply $P(5,4)=5 \times 4 \times 3 \times 2=120$

You have used 1 of 3 submissions

H2 (1/1 point)

A large tournament has 569 entrants in total. If it is a single elimination tournament, how many matches have to be played out before the champion can be decided? (Please calculate the precise value)

Answer: 568**EXPLANATION**

There are 569 entrants altogether, so that the entire tournament requires that 568 entrants be eliminated before the champion can be declared. Because each match is simply a head-to-head knockout, one person is knocked out each time. Therefore, 568 matches must be played out altogether.

You have used 1 of 3 submissions

H3 (1/1 point)

In ancient China, it was widely believed that the five elements countered one another. The five elements are: metal, wood, water, fire and earth. Metal counters wood, wood counters earth, earth counters water, water counters fire and fire counters metal. How many ways are there of selecting two elements that do not counters one another? (Please calculate the exact value)

5

5

Answer: 5



EXPLANATION

We can use (metal->wood) to denote that metal counters wood, so from the stated conditions, we have that metal->wood->earth->water->fire->metal. So now we can simply enumerate all the possibilities, which are: (metal, earth), (metal, water), (wood, water), (wood, fire), (earth, fire). This means that there are five altogether.

Check

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