Random number generator

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B I H

SalvadorDali 9 years ago

Is there any reason Hackerank uses this strange point allocation system: the problem is listed as hard, but the number of points you will get for solving it is only 5. On the other hand for solving easy problem you will get 30 points.

33 | Add Comment Permalink

bernardosulzbach 7 years ago

2 years later and the issue still persists.

9 | Add Comment Parent Permalink

_confused 4 years ago

its 2020 and it is catgorised as easy with 5 points :)

7 | Add Comment Parent Permalink

ujjwalgupta12721 1 year ago

it is 2022 and this issue is still persists

0 | Add Comment Parent Permalink

MuradSh 7 years ago

3 years later and the issue still persists.

0 | Add Comment Parent Permalink

gnsiva 6 years ago

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And now its worse, they've just reclassified it as easy, even though it is really difficult

15 ^ v | Add Comment Parent Permalink

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peterekras 6 years ago

The problem is fairly easy if you restate the question as follows: You have a rectangle with corners: (0,0) (a,0) (0,b), (a,b), and a triangle with vertices (0,0) (0,c) (c,0). What fraction of the rectangle is covered by the triangle?

21 ^ v | Add Comment Permalink

2015ucp1532 5 years ago

you are right ,nicely explained

0 ^ v | Add Comment Parent Permalink

zeyger 2 years ago

it's not always triangle! it will be trapezoid in some cases, it can be restated as this: You h
a rectangle with corners: (0,0) (a,0) (0,b), (a,b), and a line defined by x+y=c, what fraction
rectangle is below the line?

2 ^ v | Add Comment Parent Permalink

mark5907 7 years ago

long but easy to understand

```
# Enter your code here. Read input from STDIN. Print output to STD
OUT
import sys

def gcd(x, y):
    if y == 0:
        return x
    else:
        return gcd(y, x%y)

def prob(a,b,c):
    if a+b <= c:
        return 1,1
    if a >= c and b >= c:
        x = c * c
        y = 2 * a * b
        d = gcd(x,y)
        return x/d, y/d

    if a <= c and b <= c:
        x = 2* a*b -  (a - c + b)**2
        y  = 2 *a *b
        d = gcd(x,y)
        return x/d, y/d

    a, b = max(a,b), min(a,b)
    x = c**2 - (c-b)**2
    y = 2 * a* b
    d = gcd(x,y)
    return x/d, y/d

n = int( raw_input().strip() )

for i in range(n):
    a,b,c, = map(int, raw_input().strip().split())

    x,y = prob(a,b,c)
    print "{}/{}".format(x,y)
```

9 ^ v | Add Comment Permalink

corwinjoy 7 years ago

Great solution! To understand why these formulas work, I think it is easiest to solve the problem graphically. Draw a line from (0, c) to (c, 0). This is your boundary of x + y <= c. Now, on top of this you are going to draw various rectangles to represent the two uniform variables [0, a], [0, b] along each axis. Take the first case of a > c and b > c. Here you have a rectangle ab with a triangle in the lower left corner from (0, c) to (c, 0). You only want this triangle in the lower left corner since these are your allowed values of x + y <= c. The area of this triangle = 1/2 * base * height = 0.5 * c^2. The area of the rectangle is ab. The odds of landing in the "allowed" triangle are therefore 0.5 * c^2 / ab. You need to rationalize this so that the numerator and denominator are integers, so c^2 / 2ab. This gives the first case "if a >= c and b >= c" in the logic above. The rest are similar, draw pictures to find the "allowed" region within the square.

16 | Add Comment Parent Permalink

local_bantai 7 years ago

Great explanation! Could you please elaborate on why a rectangle ab instead of two independent squares a and b to represent their individual probabilities?

0 | Add Comment Parent Permalink

Qizot 6 years ago

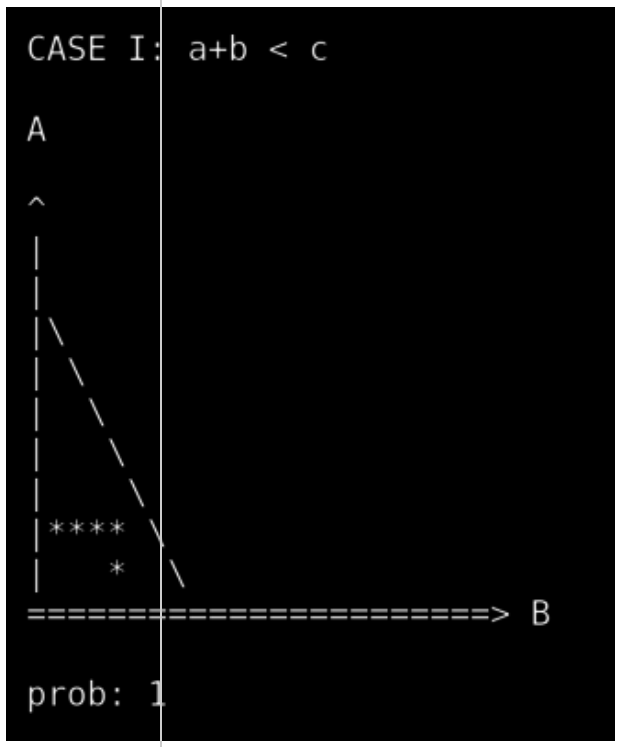
Wow, I must say that it is impressive, I wouldn't think about doing it that way or better to "imagine" it that way.

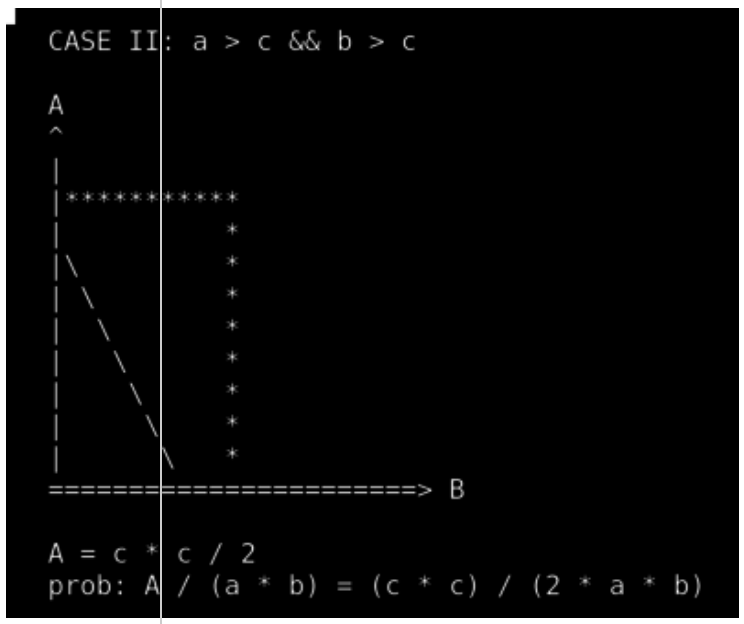
0 | Add Comment Parent Permalink

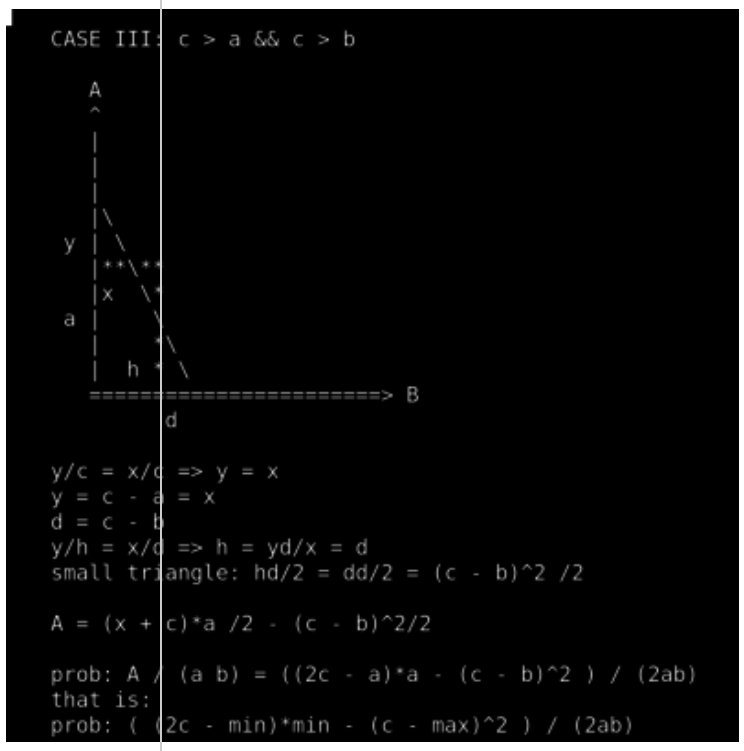
tino_calancha 6 years ago

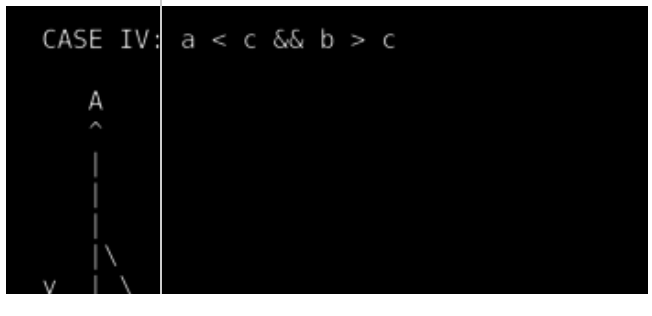
Thank you for the explanation! Below I have attached the 4 cases that we can find. The dashed line is poorly drawn but hopefully you can get the idea; you must imagine that the dashed line cut the vertical and horizontal axis at: (0, c) and (c, 0).

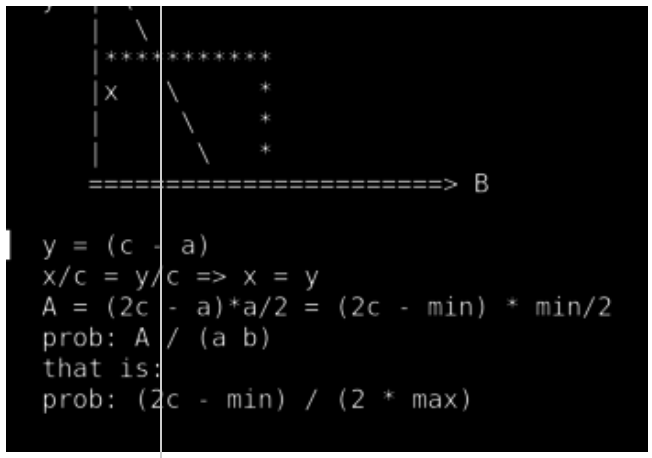
We can assume without loss of generality: a <= b Then, in order to get the general solution you just need to substitute: a => min(a, b) b => max(a, b)











22 | Add Comment Parent Permalink

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Harrison_Shen 7 years ago