**`ILI U 11**

(a) { = number of rolls needed if the last number *56 73 5; 1= numb*er *of coll's* needed if the

last neember is not 5. Then Es= 1+#o (4+E3)+28. (1+ E*h)*

6 is rolled is rolled any Ther number led *E*n = 2.54 +E3) + *(1+E9*), o

7 2 is rolled any other nember is colled

→ EŞ=380, Eh=400/ *(6755*

Problem. Set ES= .1+ 49*. (*1+E*7* . En = 6 (1+ Eş) + (2+ E) SES=400, Eh = 4201 so we get *a different* anawez.

WARNA

1.1

x= the number on the first die

y= the number on the second die In*dependence* @ *P (A*i B;) = P(A:) PlB;)

p'(x+y=¿ &y=j) = P(xfY=c). PCy=) = P(x=;-; & 9=j)=P(x+9=;). Ply=*t)*

= ☆ I(1si-j<6)

V*if the* in*di*cator =0, the qualit*y i*s *Theref*ore*, P(*x+y+i)= \* => ;=73094

Answer; 2=7 & 1s j < 66 or when at least one of the

3.1

6

1 5756

Sj 56.

*events is impo*ss*ible*

0172).

- - 7 170

IT 80p-7.7 the go = 30 40 - 16, 60,!!,70/P=7,3+ 4E

Pa

1410

11 129

-

-

1 (situation in the ! csituation in P (white) = 1/3 e st 2 2 17 8 6 3 6 - 12/16 // 4.1

**2. PROBLEM SET** 2. Eleven people enter the lift at the ground floor of a 12-storey house. Each

of them can get off the lift at all the floors starting with the first one with equal probabilities and independently of each other. Let & be equal to the quantity of floors the lift does not reach at all. (For example, if the last person exits the lift at the seventh floor, it implies that the lift does not reach floors 8, 9, etc.) Find the expected value of .

Pl=> D = P (nobody goes out at 14th floor) = %)"% Pleza) =P (nobody goes out at 10th & 11th (3) PE> 3) = ES=63977 (99"+...*+(*" 5.2

6. A taxi driver moves between four settlements W, X, Y, Z located at the vertices of a rectangle. Four highways connecting the settlements run along the sides of the rectangle, and W X = *7* kilometers, WZ = 9 kilometers. Having delivered a customer the driver waits for the next taxi call. Then he goes to the settlement the call came from, collects a customer, and goes to a new destination. A new call can emerge from any settlement with probability 0.25, and the customer chooses the settlement to travel to with probability Travelling between adjacent settlements, the driver always chooses the shortest route. The distances inside each of the settlements are very small (i.e. they may be neglected). Let be the distance the driver needs to travel in order to collect and deliver a customer. Find the distribution of random variable 5. Determine *EC* and Var.

**L1**

**11**

**2**

**.**

**.**

**...**

(3-6) WX*=7; W*Z=g...We

Let the driver be in W.. *Deetcome* AB *means* that a passenger calls XL for a taxi from A and goes to B. All these outconies Vhave eq*uil "probabil*ities (*). The* corre*sponding*

*distances a*re *l*i*sted bel*ow: : WX ::::

7 sati 9:14:16 18 23:25:32) : W. Z :::: :

1/12 1/2 2 1/2 3/12 1/12 712 3/12 Vizi). *14. E*s=32456

Es} = 4750 = 2325 Var 8 = 2375 (5) - 853

+

+

+

23((ม5)

**\***

Random variable X is uniformly distributed on (0:4). Find the probability density of Y = 972*X*

**LT**

2:4X

**www**

(3-7 X ~ 420 4] y 9-2X

fyQ = fx (@ly) 1920 ay fixy =:9:200. rel*yf2) = 9*:24; 2 = 7

........9-*24*

**w**

:

. I Caxy)1173

8. Variables *y1, 42, ..., 47* can take only positive integer values. One of the solutions of the equation *41 + y2* + ... *+ 4y* = 18 is chosen at random. Determine the probability that *ys =* 2.

..1177 / stars and

N

**NO**

infot yet. -. t a = 13,3= 2)=?

the quantity of solutions (6) bars problems If y 2 then we have Yst. Yetyst Yat yet y = 16 and the quantity of solutions is (15) 8.3 *Bence, the probabil*i*ty in q*uestion is

(15*) 15.66-4! 6.44* .33 11*:: (372*.*7:5!1017/ 16.1*2. = 136

**www**

**w**

**wwwww**

**www**