

Tajriba bitta o‘yin toshi va bitta tangani bir vaqtda tashlashdan iborat. Elementar hodisalar fazosi nechta elementdan iborat bo‘ladi?

12

8

4

36

Tajriba bitta o‘yin toshi va bitta tangani bir vaqtda tashlashdan iborat bo‘lsa, gerb tushish hodisasi qanday elementar hodisalardan iborat bo‘ladi?

$\{(gerb,1), (gerb,2),(gerb,3), (gerb,4),(gerb,5),(gerb,6)\}$

$\{(gerb,1), (gerb,3), (gerb,5)\}$

$\{(gerb,2), (gerb,4), (gerb,6)\}$

$\{gerb\}$

Tajriba bitta o‘yin toshi va bitta tangani bir vaqtda tashlashdan iborat bo‘lsa, toq ochko tushish hodisasi qanday elementar hodisalardan iborat bo‘ladi?

$\{(gerb,1), (raqam,1),(gerb,3), (raqam,3),(gerb,5),(raqam,5)\}$

$\{(gerb,1), (gerb,2),(gerb,3), (gerb,4),(gerb,5),(gerb,6)\}$

$\{(raqam,1), (raqam,2),(raqam,3), (raqam,4),(raqam,5),(raqam,6)\}$

$\{(gerb,2), (gerb,4), (gerb,6)\}$

Elementar hodisalar fazosi  $\Omega=\{1,2,3,4,5,6\}$  da  $A=\{1,2,3,5\}$ ,  $B=\{3,4,5,6\}$

hodisalar berilgan bo‘lsin.  $A \cup B - ?$

=

$\Omega$

$\{1,2\}$

$\{3,5\}$

$\{1,2,4,6\}$

Elementar hodisalar fazosi  $\Omega = \{1, 2, 3, 4, 5, 6\}$  da  $A = \{1, 2, 3, 5\}$ ,  $B = \{3, 4, 5, 6\}$  hodisalar berilgan bo'lsin.  $A \setminus B - ?$

$\{1, 2\}$

$\Omega$

$\{3, 5\}$

$\{1, 2, 4, 6\}$

Elementar hodisalar fazosi  $\Omega = \{1, 2, 3, 4, 5, 6\}$  da  $A = \{1, 2, 3, 5\}$ ,  $B = \{3, 4, 5, 6\}$  hodisalar berilgan bo'lsin.  $A \cap B - ?$

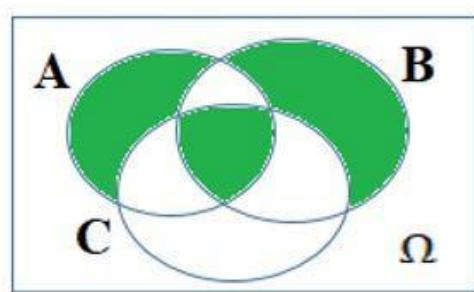
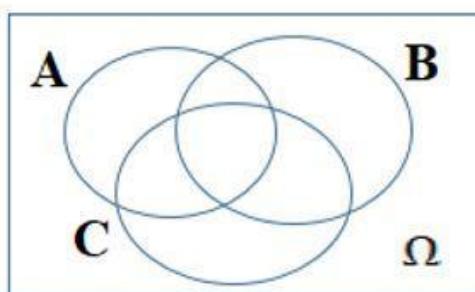
$\{3, 5\}$

$\Omega$

$\{1, 2\}$

$\{1, 2, 4, 6\}$

A, B, C lar  $\Omega$  elementar hodisalar fazosida berilgan aylanalardan iborat hodisalar bo'lsa, diagrammada bo'yagan sohani A, B, C lar orqali ifodasi qaysi javobda to'g'ri keltirilgan.



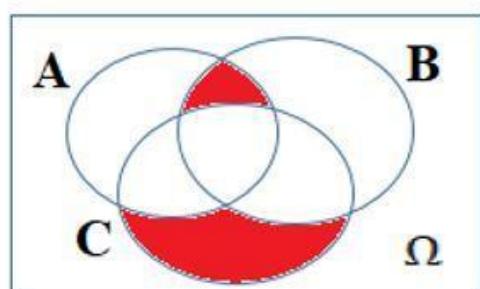
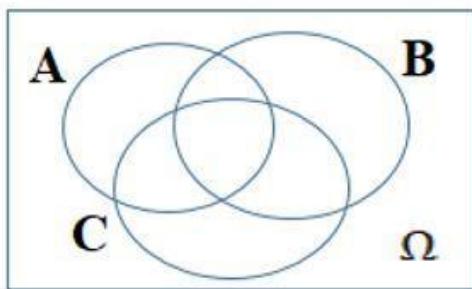
$$(A \Delta B \setminus C) \cup (A \cap B \cap C)$$

$$(A \cup B) \setminus C \cup (A \cap B \cap C)$$

$$A \Delta B \Delta C$$

$$(C \setminus (A \cup B)) \cup (A \cap B \setminus C)$$

A,B,C lar  $\Omega$  elementar hodisalar fazosida berilgan aylanalardan iborat hodisalar bo'lsa, diagrammada bo'yalgan sohani A,B,C lar orqali ifodasi qaysi javobda to'g'ri keltirilgan.



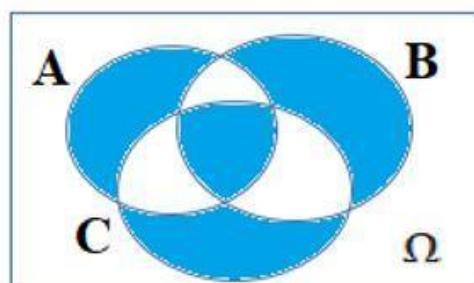
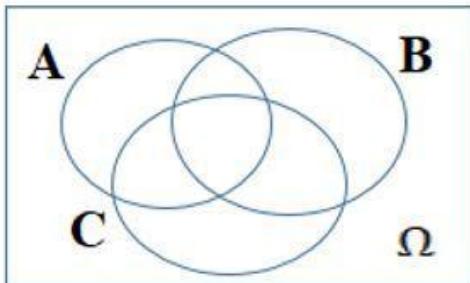
$$(C \setminus (A \cup B)) \cup (A \cap B \setminus C)$$

$$(A \Delta B \setminus C) \cup (A \cap B \cap C)$$

$$(A \cup B) \setminus C \cup (A \cap B \cap C)$$

$$A \Delta B \Delta C$$

A,B,C lar  $\Omega$  elementar hodisalar fazosida berilgan aylanalardan iborat hodisalar bo'lsa, diagrammada bo'yagan sohani A,B,C lar orqali ifodasi qaysi javobda to'g'ri keltirilgan.



$$A \Delta B \Delta C$$

$$(C \setminus (A \cup B)) \cup (A \cap B \setminus C)$$

$$(A \Delta B \setminus C) \cup (A \cap B \cap C)$$

$$(A \cup B) \setminus C \cup (A \cap B \cap C)$$

Tajriba 5 ta o'yin toshini tashlashdan iborat. Tushgan ochkolar har xil bo'lish ehtimolligi topilsin.

5/54

1/6

10/216

1/36

Tajriba 6 ta tanga tashlashdan iborat. Barcha tangalarda bir xil rasm bo'lish ehtimolligi topilsin.

1/32

1/6

1/2

1/64

Idishda 4 ta oq, 4 ta qora va 4 ta sariq sharlar bor. Idishdan 3 ta har xil rangda sharlar olish ehtimolligi topilsin.

16/55

16/50

1/120

1/12

0,1,2,3,4,5 raqamlardan bir xil raqamli 3 xonali son tuzish ehtimolligi topilsin.

1/36

5/36

1/180

1/6

ELEMENTAR so'zi harflari aloxida kartochkalarda yozilgan. Kartochkalardan ketma-ket to'rttasi olinganda TEMA so'zi chiqish ehtimolligi topilsin.

1/1008

1/72

1/504

3/56

Uchta o'yin toshi tashlanganda barcha ochkolar bir xil bo'lish ehtimolligi topilsin.

1/36

1/216

1/6

1/3

4 honali avtomobil nomerida 3 ta raqam bir xil bo'lish ehtimolligi topilsin.

0.036

0.36

1/1000

9/1000

5 ta tanga tashlanganda 4 tasida bir xil rasm bo'lish ehtimolligi topilsin.

5/16

1/16

1/5

1/32

4 ta o'yin toshi tashlanmoqda. Kamida 3 tasida bir xil raqamlar tushish ehtimolligi topilsin.

21/216

1/6

10/216

1/36

36 ta o'yin kartasidan tavakkaliga 3 tasi olinmoqda. Shularda 2 ta "TUZ" bo'lish ehtimolligi topilsin.

16/595

1/595

1/36

2/595

36 ta o'yin kartasi aralashtirilganda 2 ta qora "QIROL" yonma-yon turish ehtimolligi topilsin.

1/18

1/36

35/36

2/35

Jovonda 10 ta kitob bor, ikkitasi qizil jildli. shu qizil jildli kitoblar yonma-yon turish ehtimolligi topilsin.

1/5

1/10!

1/9

9/10!

Idishda 1 dan 20 gacha sonlsr bilan nomerlangan 20 ta sharlar bor. Idishdan ketma-ket 2 ta shar olindi, birinchi olingan sharning nomeri ikkinchi olingan sharning nomeridan katta bo'lish ehtimolligi topilsin.

1/2

1/20

1/10

1/19

1,2,3,4 raqamlardan 3 honali va raqamlar yig'indisi 4 dan oshmaydigan son tuzish ehtimolligi topilsin.

1/16

1/4

1/64

3/64

Telefon nomerining oxirgi 3 ta raqami o'chib ketgan. O'chib ketgan raqamlarning 2 tasi 9 raqami bo'lish ehtimolligi topilsin.

0.027

0.001

0.009

0.21

4 ta oyin toshi tashlanganda, faqat 3 tasi bir xil bo'lish ehtimolligi topilsin.

5/54

1/6

10/216

1/36

3 ta oyin toshi tashlanganda 2 ta 1 raqam tushish ehtimolligi topilsin.

5/72

1/72

1/5

1/36

Idishda 1,2,3 raqamli 3 ta shar bor. Idishdan ketma-ket uchta shar olindi. Olingan sharlarning raqami olinish tartibi bilan bir xil bo'lisg ehtimolligi topilsin.

1/6

1/3

1/2

1/4

Aylanma stol atrofida 10 ta mehmon joylashgan , ulardan 2 nafari erkak. Shu ikki erkak yonma-yon o'tirish ehtimolligi topilsin.

2/9

1/5

1/10

1/9

Idishda 1,2,3,4 raqamli 4 ta shar bor. Idishdan ketma-ket sharlar olinganda shardagi raqamlar o'sish tartibida chiqish ehtimolligi topilsin.

1/24

1/4

1/6

1/12

Tomoni bir bo'lgan kvadratga tashlangan nuqtadan kvadrat tomonigacha bo'lgan mazofa 0.1dan oshmaslik ehtimolligi topilsin

0.36

0.4

0.04

1

Agar,  $-1 < x < 1$ ,  $-2 < y < 2$  bo'lsa  $P(y < 2x) - ?$

1/2

1/4

2/3

3/4

Agar,  $-1 < x < 1$ ,  $-2 < y < 2$  bo'lsa  $P(y < |x|) - ?$

5/8

1/2

3/8

1/4

Agar,  $0 < x < 3$ ,  $0 < y < 3$  bo'lsa  $P(y > 2x/3) - ?$

2/3

2/9

4/9

1/3

Birlik kesmaga nuqta tashlanmoqda. Kichik bo'lakcha uzunligi 0.1 dan oshmaslik ehtimolligi topilsin.

0.2

0.1

1/3

1/2

Birlik kesmaga nuqta tashlanmoqda. Nuqtadan kesma markazigacha bo'lgan masofa 0.1 dan oshmaslik ehtimolligi topilsin.

0.2

0.1

1/3

1/2

Birlik kesmaga nuqta tashlanmoqda. Nuqtadan kesma uchigacha bo'lgan masofa 0.1dan oshmaslik ehtimolligi topilsin.

0.2

0.1

1/3

1/2

Birlik kesmaga nuqta tashlanmoqda. Nuqtadan kesma boshigacha bo'lgan masofa 0.1dan oshmaslik ehtimolligi topilsin.

0.1

0.2

1/3

1/2

Agar,  $0 < x < 4$ ,  $y < x/2$  bo'lsa  $P(y < x/4) = ?$

1/2

1/4

1/8

1/3

Tomoni bir bo'lgan kvadratga tashlangan nuqtadan kvadrat markazigacha bo'lgan mazofa 0.1dan oshmaslik ehtimolligi topilsin

$\pi/100$

$100\pi$

$\pi/10$

1

Birlik doiraga nuqta tashlanmoqda. Nuqtadan aylanagacha bo'lgan masofa  $x$  ( $0 < x < 1$ ) dan oshmaslik ehtimolligi topilsin.

$$2x - x^2$$

$$1 - 2x$$

$$\pi x^2$$

$$(1-x)^2 \pi$$

Tomoni bir bo'lgan kvadratga tashlangan nuqtadan kvadrat burchagigacha bo'lgan mazofa 0.1 dan oshmaslik ehtimolligi topilsin

$$\pi/100$$

$$100\pi$$

$$\pi/10$$

1

Tomoni bir bo'lgan kvadratga tashlangan nuqtadan kvadratning fiksirlangan burchagigacha bo'lgan mazofa 0.1 dan oshmaslik ehtimolligi topilsin

$$\pi/400$$

$$100\pi$$

$$\pi/4$$

1

Agar,  $-2 < x < 2$ ,  $-2 < y < 2$  ~~bo'lsa~~  $P(x^2+y^2<1)$ -?

$\pi/16$

$16\pi$

$\pi/4$

1

Agar,  $0 < x < 2$ ,  $-1 < y < 1$  ~~bo'lsa~~  $P(x^2+y^2<1)$ -?

$\pi/8$

$\pi/4$

$\pi/2$

$\pi$

Agar,  $-2 < x < 2$ ,  $-2 < y < 2$  ~~bo'lsa~~  $P(x^2+y^2<1)$ -?

$\pi/16$

$\pi/8$

$\pi/4$

$\pi/2$

Agar,  $-2 < x < 2$ ,  $-2 < y < 2$  ~~bo'lsa~~  $P((x-1)^2+y^2<1)$ -?

$\pi/16$

$\pi/8$

$\pi/4$

$\pi/2$

Agar,  $-2 < x < 2$ ,  $-2 < y < 2$  bo'lsa  $P(x^2 + (y-1)^2 < 1) - ?$

$\pi/16$

$\pi/8$

$\pi/4$

$\pi/2$

Agar,  $-2 < x < 2$ ,  $-2 < y < 2$  bo'lsa  
 $P((x-1)^2 + (y-1)^2 < 1) - ?$

$\pi/16$

$\pi/8$

$\pi/4$

$\pi/2$

Tomoni bir bo'lgan kvadratga aylana ichki chizilgan. Kvadratga tashlangan nuqta aylanaga tushish ehtimolligi topilsin.

$\pi/4$

$\pi/2$

$1 - \pi/4$

$1 - \pi$

Ehtimollikning klassik ta‘rifida elementar hodisalar fazosiga qanday shart qo‘yiladi?

Cheklilik

Sanoqli cheksizlik

Sanoqsiz cheksizlik

Bo‘sh bo‘lmaslik

Yong‘indan xabar berish uchun 2 ta signalizator o‘rnatilgan. Agar A va B mos ravishda bu signalizatorlarning ishlash hodisasi bo‘lsa, yong‘indan xabar topish hodisasini A va B lar orqali ifodalang

Muqarrar hodisaning ehtimoli nimaga teng?

1

0

0.5

-1

Mumkin bo'limgan hodisaning ehtimoli nimaga teng?

0

1

-1

0.5

Ixtiyoriy A hodisaning ehtimolligi uchun qanday xossa o'rinli?

Agar har bir erkli tajribada A hodisaning ro'y berish ehtimoli  $P(A)$  bir xil va  $0 < P(A) < 1$  bo'lsa, u holda n ta tajribada A hodisani k marta ro'y berish ehtimoli (tajribalar soni kichik | bo'lganda) qanday formula bilan topiladi:

$$P_n(k) = C_n^k p^k q^{n-k}$$

$$P_n(k) \approx \frac{\lambda^k}{k!} e^{-\lambda}$$

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi \left( \frac{k - np}{\sqrt{npq}} \right)$$

$$P_n(k) \approx \Phi \left( \frac{k - np}{\sqrt{npq}} \right)$$

Agar har bir erkli tajribada A hodisaning ro'y berish ehtimoli  $P(A)$  bir xil va  $0 < P(A) < 1$  bo'lsa, u holda n ta tajribada A hodisani k marta ro'y berish ehtimoli (tajribalar soni yetarlicha katta bo'lganda) qanday formula bilan topiladi:

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi \left( \frac{k - np}{\sqrt{npq}} \right)$$

$$P_n(k) = C_n^k p^k q^{n-k}$$

$$P_n(k) \approx \frac{\lambda^k}{k!} e^{-\lambda}$$

$$P_n(k) \approx \Phi\left(\frac{k - np}{\sqrt{npq}}\right)$$

Bernulli formulasini aniqlang?

$$P_n(k) = C_n^k p^k q^{n-k}$$

$$P_n(k) \approx \frac{\lambda^k}{k!} e^{-\lambda}$$

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi\left(\frac{k - np}{\sqrt{npq}}\right)$$

$$P_n(k) \approx \Phi\left(\frac{k - np}{\sqrt{npq}}\right)$$

Puasson formulasini aniqlang?

$$P_n(k) \approx \frac{\lambda^k}{k!} e^{-\lambda}$$

$$P_n(k) = C_n^k p^k q^{n-k}$$

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi\left(\frac{k - np}{\sqrt{npq}}\right)$$

$$P_n(k) \approx \Phi\left(\frac{k - np}{\sqrt{npq}}\right)$$

Muavr-Laplasning lokal formulasini aniqlang?

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi \left( \frac{k - np}{\sqrt{npq}} \right)$$

$$P_n(k) = C_n^k p^k q^{n-k}$$

$$P_n(k) \approx \frac{\lambda^k}{k!} e^{-\lambda}$$

$$P_n(k) \approx \Phi \left( \frac{k - np}{\sqrt{npq}} \right)$$

Diskret tasodifiy miqdor taqsimot qonuni qabul qiladigan qiymatlari  $x_1; x_2; \dots; x_n$  va mos ehtimollari  $p_1; p_2; \dots; p_n$  bilan berilgan bo'lsa,  $p_1; p_2; \dots; p_n$ -lar qanday shartni bajarishi lozim?

$$p_1 + p_2 + \dots + p_n = 1$$

$$p_1 + p_2 + \dots + p_n < 1$$

$$p_1 + p_2 + \dots + p_n > 1$$

$$p_1 + p_2 + \dots + p_n = 0.5$$

Koordinatalari X tasodifiy miqdorning qabul qiladigan qiymatlari ya mos ehtimollaridan iborat  $(x_i; p_i)$  nuqtalarni birin-ketin tutashtirishdan hosil bo'lgan siniq chiziqqa.....

Taqsimot ko'pburchagi deyiladi

Taqsimot qonuni deyiladi

Taqsimot funksiyasi deyiladi

Zichlik funksiyasi deyiladi

Agar  $M\xi = 4$ ,  $M\eta = 3$  bo'lsa, u  
holda  $M \left( \frac{5\xi - 2\eta}{10} + 2022 \right) - ?$

2023.4

2022.4

1.4

0.4

Agar  $D\xi = 4$ ,  $D\eta = 3$  bo'lsa, u  
holda  $D \left( \frac{4\xi - 5\eta}{10} + 2022 \right) - ?$

1.39

-0.21

1.42

-0.12

Agar  $D\xi = 2$ ,  $D\eta = 3$  bo'lsa, u  
holda  $D \left( \frac{3\xi - 2\eta}{10} + 2022 \right) - ?$

0.3

0.25

0.35

0.4

Agar  $D\xi = 3$ ,  $D\eta = 4$  bo'lsa, u  
holda  $D \left( \frac{4\xi - 5\eta}{10} + 2022 \right) - ?$

1.48

2023.48

0.76

-0.52

Diskret tasodifiy miqdor taqsimot qonuni qabul qiladigan qiymatlari  $x_1; x_2; \dots; x_n$  va mos ehtimollari  $p_1; p_2; \dots; p_n$  bilan berilgan bo'lsa, Matematik kutilmaning fizikaviy ma'nosi nimani anglatadi?

$x_1; x_2; \dots; x_n$   
nuqtalarga qo'vilgan

$p_1; p_2; \dots; p_n$   
og'irliliklarning

Og'irlilik markazini  
anglatadi.

$x_1; x_2; \dots; x_n$   
nuqtalarga qo'vilgan

$p_1; p_2; \dots; p_n$   
og'irliliklarning  
maksimumini  
anglatadi.

$x_1; x_2; \dots; x_n$  nuqtalarga  
qo'vilgan  $p_1; p_2; \dots; p_n$   
og'irliliklarning  
minimumini anglatadi.

$x_1; x_2; \dots; x_n$   
nuqtalarga qo'vilgan  
 $p_1; p_2; \dots; p_n$   
og'irliliklarning og'irlik  
markazidan  
chetlanishini

Agar  $P(\xi = 2) = 0.4$ ;  $P(\xi = 3) = 0.2$ ;  $P(\xi = 4) = 0.1$ ;  $P(\xi = 7) = 0.3$  bo'lsa M  $\xi - ?$

3.9

3.2

3.1

3.4

Agar  $P(\xi = 2) = 0.4$ ;  $P(\xi = 3) = 0.2$ ;  $P(\xi = 4) = 0.1$ ;  $P(\xi = 7) = 0.3$  bo'lsa  $D\xi - ?$

5.49

5.59

1.63

1.62

Agar  $P(\xi = 2) = 0.4$ ;  $P(\xi = 3) = 0.2$ ;  $P(\xi = 4) = 0.1$ ;  $P(\xi = 7) = 0.3$  bo'lsa  $Mo(\xi) - ?$

2

3

4

5

Agar  $P(\xi = 2) = 0.4$ ;  $P(\xi = 3) = 0.2$ ;  $P(\xi = 4) = 0.1$ ;  $P(\xi = 5) = 0.3$  bo'lsa  $Me(\xi) - ?$

3

2

4

5

Agar  $P(X = -2) = 0.2$ ;  $P(X = 1) = p_2$ ;  $P(X = x_3) = 0.3$  va MX=1 bo'lsa,  $p_2 - ?$   $x_3 - ?$

$p_2 = 0.5$ ;  $x_3 = 3$

$p_2 = 3$ ;  $x_3 = 0.5$

$p_2 = 0.4$ ;  $x_3 = 4$

$$p_2 = 0.7; \quad x_3 = 6$$

Agar  $P(X = -2) = 0.2$ ;  $P(X = 1) = p_2$ ;  $P(X = 3) = p_3$  va MX=1 bo'lsa,  $p_2 - ?$   $p_3 - ?$

$$p_2 = 0.5; \quad p_3 = 0.3$$

$$p_2 = 0.4; \quad p_3 = 0.4$$

$$p_2 = 0.2; \quad p_3 = 0.6$$

$$p_2 = 0.7; \quad p_3 = 0.1$$

Agar  $P(X = -2) = 0.2$ ;  $P(X = 1) = p_2$ ;  $P(X = 3) = p_3$  va MX=1 bo'lsa, DX-?

3

4

5

2

Agar  $P(X = -2) = 0.2$ ;  $P(X = 1) = p_2$ ;  $P(X = 3) = p_3$  va  $MX^2 = 4$  bo'lsa, DX-?

3

4

5

2

Agar  $P(X = -2) = 0.5$ ;  $P(X = -1) = p_2$ ;  $P(X = x_3) = 0.2$  va MX=-0.9 bo'lsa,  $p_2 - ?$   $x_3 - ?$

$$p_2 = 0.3; \quad x_3 = 2$$

$$p_2 = 2; \quad x_3 = 0.3$$

$$p_2 = 0.4; \quad x_3 = 4$$

$$p_2 = 0.2; \quad x_3 = 6$$

Agar  $P(X = -2) = 0.5$ ;  $P(X = -) = p_2$ ;  $P(X = 2) = p_3$  va MX=-0.9 bo'lsa,  $p_2$ -?  $p_3$ -?

$$p_2 = 0.3; \quad p_3 = 0.2$$

$$p_2 = 0.4; \quad p_3 = 0.1$$

$$p_2 = 0.1; \quad p_3 = 0.4$$

$$p_2 = 0.05; \quad p_3 = 0.45$$

Agar  $P(X = -2) = 0.5$ ;  $P(X = -1) = p_2$ ;  $P(X = 2) = p_3$  va MX=-0.9 bo'lsa, DX-?

2.29

3.39

3.1

4.21

Agar  $D\xi = 3$ ,  $D\eta = 4$  bo'lsa, u holda  $D\left(\frac{4\xi-3\eta}{10} - 2022\right)$ -?

0.74

2021.26

2022.74

0

Agar  $D\xi = 4$ ,  $D\eta = 5$  bo'lsa, u holda  $D\left(\frac{5\xi-4\eta}{10} - 2022\right)$ -?

1.8

2020.2

2023.8

0.2

Agar  $D\xi = 2$ ,  $D\eta = 3$  bo'lsa, u holda  $D\left(\frac{7\xi - 6\eta}{10} + 2022\right) - ?$

2.06

2024.06

2023

20.6

Agar  $D\xi = 4$ ,  $D\eta = 3$  bo'lsa, u holda  $D\left(\frac{2\xi - 5\eta}{10} - 2022\right) - ?$

0.91

2022.91

-2021.09

-0.59

Agar  $P(X = -2) = 0.5$ ;  $P(X = -1) = p_2$ ;  $P(X = 2) = p_3$  va  $MX^2 = 3.1$  bo'lsa, DX-?

2.29

3.39

3.1

4.21

O'yin toshini 4 marta tashlaganda 5 ochkoni ikki marta chiqish ehtimoli topilsin?

25/216

18/215

191/216

197/215

Nishonga qarata erkli 3 ta o‘q uzildi.  
Turli xil o‘q uzishlarda nishonga  
tekkizish ehtimoli turliche bo‘lib:  
 $p_1 = 0.7; p_2 = 0.8; p_3 = 0.9$  ga  
teng. Bitta o‘qni nishoga tegish  
ehtimoli topilsin

0,092

0,006

0,398

0,504

Nishonga qarata erkli 3 ta o‘q uzildi.  
Turli xil o‘q uzishlarda nishonga  
tekkizish ehtimoli turliche bo‘lib:  
 $p_1 = 0.7; p_2 = 0.8; p_3 = 0.9$  ga  
teng. Ikkita o‘qni nishoga tegish  
ehtimoli topilsin

0,398

0,092

0,006

0,504

Nishonga qarata erkli 3 ta o‘q uzildi.  
Turli xil o‘q uzishlarda nishonga  
tekkizish ehtimoli turlichcha bo‘lib:  
 $p_1 = 0.7; p_2 = 0.8; p_3 = 0.9$  ga  
teng. Uchta o‘qni nishoga tegish  
ehtimoli topilsin

0,504

0,398

0,092

0,006

Nishonga qarata erkli 3 ta o‘q uzildi.  
Turli xil o‘q uzishlarda nishonga  
tekkizish ehtimoli turlichcha bo‘lib:  
 $p_1 = 0.7; p_2 = 0.8; p_3 = 0.9$  ga  
teng. Nishoga tegmaslik ehtimoli  
topilsin

0,006

0,504

0,398

0,092

Qandaydir o'simlikning unib chiqish ehtimoli 80%. 5 ta ekilgan urug'dan kamida 4 ta tasi unib chiqish ehtimoli topilsin

0,73728

0,69514

0,84573

0,5443

Elektron pochta orqali 5000 ta simvoldan iborat fayl jo'natildi. Agar har bir simvolni noto'g'ri ketish ehtimoli 0.0002 ga teng bo'lsa, fayl jo'natilganda roppa-rosa 3 ta simvolni noto'g'ri jo'natilgan bo'lish ehtimoli topilsin?

$\frac{1}{6e}$

$\frac{1}{5e}$

$\frac{1}{7e}$

$\frac{1}{8e}$

Elektron pochta orgali 5000 ta  
simvoldan iborat fayl jo'natildi. Agar  
har bir simvolni noto'g'ri ketish  
ehtimoli 0.0002 ga teng bo'lsa, fayl  
jo'natilganda ko'pi bilan 3 ta simvol  
noto'g'ri jo'natilgan bo'lish ehtimoli  
topilsin?

$$\frac{8}{3e}$$

$$\frac{7}{6e}$$

$$\frac{16}{5e}$$

$$\frac{5}{8e}$$

Elektron pochta orgali 5000 ta  
simvoldan iborat fayl jo'natildi. Agar  
har bir simvolni noto'g'ri ketish  
ehtimoli 0.0002 ga teng bo'lsa, fayl  
jo'natilganda kamida 3 ta simvolni  
noto'g'ri jo'natilgan bo'lish ehtimoli  
topilsin?

$$\frac{2e - 5}{2e}$$

$$\frac{3e - 5}{3e}$$

$$\frac{2e - 3}{2e}$$

$$\frac{2e - 3}{5e}$$

Muavr-Laplas formulasidagi  $\varphi(x)$  funksiya qanday aniqlanadi:

$$P_n(k) \approx \frac{1}{\sqrt{npq}} \varphi \left( \frac{k - np}{\sqrt{npq}} \right)$$

$$\varphi(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

$$\varphi(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

$$\varphi(x) = \frac{1}{\sqrt{\pi}} e^{-\frac{x^2}{2}}$$

$$\varphi(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

$$\varphi(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}}$$

Normal taqsimot zichlik funksiyasi qanday xossaga ega emas

toq

juft

Egilish nuqtalari

$$x = \pm 1$$

$x \geq 4$ ,  $\varphi(x) \rightarrow 0$

Muavr-Laplasning integral formulasidagi funnksiya  $\Phi(x)$  qanday aniqlanadi?

$$\Phi(x) = \frac{1}{\sqrt{2\pi}} \int_0^x e^{-\frac{t^2}{2}} dt$$

$$\Phi(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{+\infty} e^{-\frac{t^2}{2}} dt$$

$$\Phi(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^0 e^{-\frac{t^2}{2}} dt$$

$$\Phi(x) = \frac{1}{\sqrt{2\pi}} \int_{-x}^x e^{-\frac{t^2}{2}} dt$$

Muavr-Laplasning integral formulasidagi Laplas funksiyasi  $\Phi(x)$  qanday xossaga ega emas

juft

toq

$x \geq 5$ ,  $\Phi(x) \rightarrow 0.5$

O'suvchi

Mergan 400 ta o'q uzdi. Har bir o'q otishda nishonga tekkizish ehtimoli 0.8 ga teng bo'lsa, roppa-rosa 325 ta o'qni nishonga tekkizish ehtimolini toping ( $\varphi(0.63) = 0.3271$ )

0,041

0,037

0,058

0,412

Bernulli va Puasson formulalarida A hodisani ko'pi bilan k marta ro'y berish ehtimoli qanday aniqlanadi?

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

$$\begin{aligned} &P_n(0) + P_n(1) + \cdots + \\ &+ P_n(k-1) \end{aligned}$$

$$\begin{aligned} &P_n(k) + P_n(k+1) + \cdots \\ &+ P_n(n) \end{aligned}$$

$$\begin{aligned} &P_n(k+1) + \\ &+ P_n(k+2) + P_n(n) \end{aligned}$$

Bernulli va Puasson formulalarida A hodisani k tadan kam ro'y berish ehtimoli qanday aniqlanadi?

$$\begin{aligned} &P_n(0) + P_n(1) + \cdots + \\ &+ P_n(k-1) \end{aligned}$$

$$\begin{aligned} &P_n(0) + P_n(1) + \cdots \\ &+ P_n(k) \end{aligned}$$

$$\begin{aligned} &P_n(k) + P_n(k+1) + \cdots \\ &+ P_n(n) \end{aligned}$$

$$P_n(k+1) + \\ + P_n(k+2) + P_n(n)$$

Bernulli va Puasson formulalarida A hodisani k tadan  
ko‘p ro‘y berish ehtimoli qanday aniqlanadi?

Bernulli va Puasson formulalarida A hodisani k tadan  
ko‘p ro‘y berish ehtimoli qanday aniqlanadi?

$$P_n(k+1) + \\ + P_n(k+2) + P_n(n)$$

$$P_n(0) + P_n(1) + \cdots + \\ + P_n(k-1)$$

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

$$P_n(k) + P_n(k+1) + \cdots \\ + P_n(n)$$

Bernulli va Puasson formulalarida A hodisani kamida  
k marta ro‘y berish ehtimoli qanday aniqlanadi?

$$P_n(k) + P_n(k+1) + \cdots \\ + P_n(n)$$

$$P_n(k+1) + \\ + P_n(k+2) + P_n(n)$$

$$P_n(0) + P_n(1) + \cdots + \\ + P_n(k-1)$$

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

Bernulli va Puasson formulalarida A hodisani kamida  
k marta ko‘pi bilan m marta ro‘y berish ehtimoli  
qanday aniqlanadi?

$$P_n(k) + P_n(k+1) + \cdots + P_n(m)$$

$$P_n(k+1) + \\ + P_n(k+2) + P_n(n)$$

$$P_n(0) + P_n(1) + \cdots + \\ + P_n(k-1)$$

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

Bernulli va Puasson formulalarida A hodisani hech bo'lmaganida bir marta ro'y berish ehtimoli qanday aniqlanadi?

$$1 - P_n(0)$$

$$P_n(0) + P_n(1) + \cdots + \\ + P_n(k-1)$$

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

$$P_n(0) + P_n(1) + \cdots + P_n(k)$$

Bernulli sxemasida hodisani eng katta ehtimolli ro'y berishlar soni  $k_0$  qanday aniqlanadi

$$np - q < k_0 < np + p$$

$$np - q < k_0 < np - p$$

$$np + q < k_0 < np + p$$

$$np - p < k_0 < np + q$$

Merganni nishonga tekkizish ehtimoli 0.7 ga teng. 8 ta o‘q uzbekda eng katta ehtimolli nishonga tegishlar soni topilsin

6

5

7

4

$\xi$  uzluksiz tasodifiy miqdorning taqsimot funksiyasi  $F_\xi(x) = P(\xi < x)$  uchun qaysi xossa o‘rinli?

$$0 \leq F_\xi(x) \leq 1$$

$$-1 \leq F_\xi(x) \leq 1$$

$$0 \leq F_\xi(x) \leq 2$$

$$-2 \leq F_\xi(x) \leq 2$$

$\xi$  uzluksiz tasodifiy miqdorning taqsimot funksiyasi  $F_\xi(x) = P(\xi < x)$  uchun qaysi xossa o‘rinli?

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) \leq F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) < F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) > F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) \geq F_\xi(x_2)$$

$\xi$  uzluksiz tasodifiy miqdorning taqsimot funksiyasi  $F_\xi(x) = P(\xi < x)$  uchun qaysi xossa o‘rinli?

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) \leq F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) < F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) > F_\xi(x_2)$$

$$\forall x_1 < x_2 \Rightarrow F_\xi(x_1) \geq F_\xi(x_2)$$

$\xi$  uzluksiz tasodifiy miqdor bo'lsa,  $P(a < \xi < b) = P(a \leq \xi < b) = P(a < \xi \leq b) = P(a \leq \xi \leq b)$  bo'ib, ular qanday aniqlanadi?

$$F_\xi(b) - F_\xi(a)$$

$$F_\xi(b) + F_\xi(a)$$

$$F_\xi(a) - F_\xi(b)$$

$$F_\xi(b) * F_\xi(a)$$

Agar  $\xi$  uzluksiz tasodifiy miqdorning mumkin bo'lgan qiymatlari  $(a, b)$  oraliqqa tegishli bo'lsa, u holda ixtiyoriy  $x \leq a$  uchun  $F_\xi(x) - ?$

0

1

2

3

Agar  $\xi$  uzluksiz tasodifiy miqdorning mumkin bo'lgan qiymatlari  $(a, b)$  oraliqqa tegishli bo'lsa, u holda ixtiyoriy  $x \geq b$  uchun  $F_\xi(x) - ?$

1

0

2

5

Agar tasodifiy miqdorning mumkin bo‘lgan qiymatlari butun  $x$  o‘qida joylashgan bo‘lsa, u holda  $\lim_{x \rightarrow -\infty} F_\xi(x) = ?$

0

1

2

3

Agar tasodifiy miqdorning mumkin bo‘lgan qiymatlari butun  $x$  o‘qida joylashgan bo‘lsa, u holda  $\lim_{x \rightarrow +\infty} F_\xi(x) = ?$

1

0

2

-1

$\xi$  uzluksiz tasodifiy miqdorning zichlik funksiyasi qanday xossaga ega?

$$f_\xi(x) \geq 0$$

$$f_\xi(x) > 0$$

$$f_\xi(x) \leq 0$$

$$f_\xi(x) \geq 0.5$$

$\xi$  uzluksiz tasodifiy miqdorning zichlik funksiyasi qanday xossaga ega?

$$\int_{-\infty}^{+\infty} f_\xi(x) dx = 1$$

$$\int_{-\infty}^{+\infty} f_\xi(x) dx = 0$$

$$\int_{-\infty}^{+\infty} f_\xi(x) dx = -1$$

$$\int_{-\infty}^{+\infty} f_\xi(x) dx = 0.2$$

$\xi$  uzlusiz tasodifiy miqdorning zichlik funksiyasi  $f_\xi(x)$  qanday xossaga ega?

$$P(a < \xi < b) = \int_a^b f_\xi(x) dx$$

$$P(a < \xi < b) = f_\xi(b) - f_\xi(a)$$

$$P(a < \xi < b) = f_\xi(b) + f_\xi(a)$$

$$P(a < \xi < b) = f_\xi(a) - f_\xi(b)$$

$\xi$  uzlusiz tasodifiy miqdorning zichlik funksiyasi  $f_\xi(x)$  bilan berilgan bo'lsa, taqsimot funksiya qanday topiladi?

$$F_\xi(x) = \int_{-\infty}^x f_\xi(t) dt$$

$$F_\xi(x) = \int_{-\infty}^{+\infty} f_\xi(t) dt$$

$$F_\xi(x) = f'_\xi(x)$$

$$F_\xi(x) = \int_x^{+\infty} f_\xi(t) dt$$

Mumkin bo‘lgan qiymatlari butun OX o‘qqa tegishli bo‘lgan  $\xi$  uzliksiz tasodifiy miqdorning matematik kutilishi qanday topiladi?

$$M\xi = \int_{-\infty}^{+\infty} x * f_\xi(x) dx$$

$$M\xi = \int_{-\infty}^x x * f_\xi(x) dx$$

$$M\xi = \int_a^b x * f_\xi(x) dx$$

"

"

Tasodifiy miqdor og‘irlilik markazidan chetlanishining matematik kutilmasi nimaga teng?

$$M(X - M(X)) = 0$$

$$M(X - M(X)) = 1$$

$$M(X - M(X)) = 0.5$$

$$M(X - M(X)) = 0.3$$

Mumkin bo‘lgan qiymatlari  $(a, b)$  oraliqqa tegishli bo‘lgan  $\xi$  uzliksiz tasodifiy miqdorning matematik kutilishi qanday topiladi?

$$M\xi = \int_a^b x * f_\xi(x) dx$$

$$M\xi = \int_{-\infty}^x x * f_\xi(x) dx$$

$$M\xi = \int_x^{+\infty} x * f_\xi(x) dx$$

$$M\xi = \int_{-\infty}^{+\infty} (x - a) * f_\xi(x) dx$$

Mumkin bo'lgan qiymatlari butun OX o'qqa tegishli bo'lgan  $\xi$  uzluksiz tasodifiy miqdorning dispersiyasi qanday topiladi?

$$D\xi = \int_{-\infty}^{+\infty} (x - M\xi)^2 * f_\xi(x) dx$$

$$D\xi = \int_{-\infty}^{+\infty} x * f_\xi(x) dx$$

$$D\xi = \int_{-\infty}^x (x - M\xi)^2 * f_\xi(x) dx$$

$$D\xi = \int_{-\infty}^{+\infty} x^2 * f_\xi(x) dx$$

$$\xi \text{ uzluksiz tasodifiy miqdon} \quad f_\xi(x) = \begin{cases} c \cdot x^2; & \text{agar } x \in [0; 2] \\ 0; & \text{agar } x \notin [0; 2] \end{cases}$$

zichlik funksiya bilan berilgan. Noma'lum  $c$ - parametr nimaga teng?

3/8

5/8

1/8

8/3

$$\xi \text{ uzluksiz tasodifiy miqdon} \quad f_\xi(x) = \begin{cases} c \cdot x^2; & \text{agar } x \in [0; 2] \\ 0; & \text{agar } x \notin [0; 2] \end{cases}$$

zichlik funksiya bilan berilgan. Matematik kutilma nimaga teng?

3/2

2/3

3/4

1/4

$$\xi \text{ uzlusiz tasodify miqdor} \quad f_{\xi}(x) = \begin{cases} c \cdot x^2; & \text{agar } x \in [0; 2] \\ 0; & \text{agar } x \notin [0; 2] \end{cases}$$

zichlik funksiya bilan berilgan. Dispersiya nimaga teng?



3/20

3/2

7/9

3/8

$$\xi \text{ uzlusiz tasodify miqdor} \quad f_{\xi}(x) = \begin{cases} c \cdot x^2; & \text{agar } x \in [0; 2] \\ 0; & \text{agar } x \notin [0; 2] \end{cases}$$

zichlik funksiya bilan berilgan. Medianani toping?

$$\sqrt[3]{4}$$

$$\sqrt[3]{2}$$

$$\sqrt[3]{5}$$

$$\sqrt[3]{3}$$

$$\xi \text{ uzlusiz tasodify miqdor} \quad f_{\xi}(x) = \begin{cases} c \cdot x^2; & \text{agar } x \in [0; 2] \\ 0; & \text{agar } x \notin [0; 2] \end{cases}$$

zichlik funksiya bilan berilgan. Modani toping?

2

0

3/8

3/20

X\Y	1	5	
0	0,2	0,3	corr(X,Y)-?
2	0,3	0,2	

-0.2

-0.4

0.3

0.2

X\Y	1	5	
0	0,2	0,3	corr(X,Y)-?
2	0,3	0,2	

-0.2

-0.4

0.3

0.2

X\Y	1	5
0	0,2	0,3
2	0,3	0,2

X\*Y ning taqsimot qonuni topilsin?

X*Y	12	24	20	40
P	0,2	0,3	0,3	0,2

X*Y	10	25	24	38
P	0,3	0,1	0,4	0,2

X*Y	14	26	22	42
P	0,1	0,4	0,3	0,2

X\Y	1	5
0	0,2	0,3
2	0,3	0,2

M(X\*Y)-?

2.6

4.2

-3.1

-0.4

X\Y	1	5
0	0,2	0,3
2	0,3	0,2

cov(X,Y)-?

-0.4

4.2

-3.1

2.6

X\Y	2	6
1	0,2	0,3
3	0,3	0,2

corr(X,Y)-?

-0.2

-0.42

0.31

0.23

$X \setminus Y$	2	6
1	0,2	0,3
3	0,3	0,2

$X^*Y$  ning taqsimot qonuni topilsin?

$X^*Y$	2	6	6	18
P	0,2	0,3	0,3	0,2

$X^*Y$	0	7	10	16
P	0,3	0,1	0,4	0,2

$X^*Y$	2	6	6	18
P	0,3	0,2	0,2	0,3

$X^*Y$	4	8	8	20
P	0,1	0,4	0,3	0,2

$X \setminus Y$	2	6
1	0,2	0,3
3	0,3	0,2

$M(X^*Y)$ -?

7.6

8.6

7.4

-7.4

X\Y	2	6
1	0,2	0,3
3	0,3	0,2

cov(X,Y)-?

-0.4

0.45

-3.1

2.61

X\Y	3	7
2	0,2	0,3
4	0,3	0,2

corr(X,Y)-?

-0.2

-0.1

0.3

0.2

X\Y	3	7
2	0,2	0,3
4	0,3	0,2

X\*Y ning taqsimot qonuni topilsin?

X*Y	6	14	12	28
P	0,2	0,3	0,3	0,2

X*Y	4	15	16	26
P	0,3	0,1	0,4	0,2

X*Y	6	14	12	28
P	0,3	0,2	0,2	0,3

X*Y	8	16	14	30
P	0,1	0,4	0,3	0,2

X\Y	3	7
2	0,2	0,3
4	0,3	0,2

M(X\*Y)-?

14.6

14.2

13.5

15.6

X\Y	3	7
2	0,2	0,3
4	0,3	0,2

cov(X,Y)-?

-0.4

-1.4

3.1

2.6

X\Y	4	8		
3	0,4	0,1		
5	0,1	0,4		

corr(X,Y)-?

0.6

0.4

- 0.4

0.2

X\Y	4	8
3	0,4	0,1
5	0,1	0,4

X\*Y ning taqsimot qonuni topilsin?

X*Y	12	24	20	40
P	0,4	0,1	0,1	0,4

X*Y	10	25	24	38
P	0,3	0,1	0,4	0,2

X*Y	12	24	20	40
P	0,3	0,2	0,2	0,3

X*Y	14	26	22	42
P	0,1	0,4	0,3	0,2

X\Y	4	8
3	0,4	0,1
5	0,1	0,4

M(X\*Y)-?

25.2

24.1

23.5

25.6

X\Y	4	8
3	0,4	0,1
5	0,1	0,4

*cov(X,Y)-?*

1.2

1.4

1.1

1.3

X\Y	-4	0
-5	0,35	0,15
-3	0,15	0,35

*corr(X,Y)-?*

0.4

0.6

0.3

0.2

X\Y	-4	0
-5	0,35	0,15
-3	0,15	0,35

*X\*Y ning taqsimot qonuni topilsin?*

X*Y	20	0	12	0
P	0,35	0,15	0,15	0,35

X*Y	18	1	16	-2
P	0,3	0,1	0,4	0,2

X*Y	20	0	12	0
P	0,3	0,2	0,2	0,3

X*Y	22	2	14	2
P	0,1	0,4	0,3	0,2

X\Y	-4	0
-5	0,35	0,15
-3	0,15	0,35

M(X\*Y)-?

8.8

7.8

6.5

7.6

X\Y	-4	0
-5	0,35	0,15
-3	0,15	0,35

cov(X,Y)-?

0.8

1.7

0.9

0.6

Tanlanma quyidagicha sonlardan iborat				
1	-3	2	-1	-4
Tanlanma o'rta qiymatni toping				

-1

2

1

$2^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
1	-3	2	-1	-4
Tanlanma o'rta qiymatni toping				

-1

2

1

$2^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
0	-4	1	-5	-2
Tanlanma dispersiyani toping				

5,2

5

6

4

Tanlanma quyidagicha sonlardan iborat				
-1	3	-4	-3	0
Tanlanma o'rtacha kvadratik chetlanishni toping				

$6^{0.5}$

$3^{0.5}$

$4^{0.5}$

$7^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
2	-3	0	3	-2
To'g'rilangan dipersiyani toping				

6,5

6

7,5

5,5

Tanlanma quyidagicha sonlardan iborat				
3	-2	1	2	-4
To'g'rilangan o'rtacha kvadratik chetlanishni toping				

$8,5^{0.5}$

$5^{0.5}$

$8^{0.5}$

$10^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
8	3	6	7	1
Tanlanma Modasini aniqlang?				

aniqlanmaydi

3

6

7

Tanlanma quyidagicha sonlardan iborat				
0	-5	1	4	-2
Tanlanma Medianasini aniqlang?				

0

1

-2

4

Tanlanma quyidagicha sonlardan iborat				
3	-1	4	1	-2
Tanlanma o'rta qiymatni toping				

1

-1

3

-2

Tanlanma quyidagicha sonlardan iborat				
2	-2	3	-3	0
Tanlanma dispersiyani toping				

5,2

3,2

4

4,5

Tanlanma quyidagicha sonlardan iborat				
1	5	-2	-1	2
Tanlanma o'rtacha kvadratik chetlanishni toping				

$6^{0.5}$

$3^{0.5}$

$2^{0.5}$

$8^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
4	-1	2	5	0
To'g'rilangan dipersiyani toping				

6,5

4

2

5

Tanlanma quyidagicha sonlardan iborat				
5	0	3	4	-2
To'g'rilangan o'rtacha kvadratik chetlanishni toping				

$8,5^{0.5}$

$6^{0.5}$

11

7,5

Tanlanma quyidagicha sonlardan iborat				
8	3	6	7	1
Tanlanma Modasini aniqlang?				

aniqlanmaydi

1

3

6

Tanlanma quyidagicha sonlardan iborat				
2	-3	3	6	0
Tanlanma Medianasini aniqlang?				

2

3

-1

-3

Tanlanma quyidagicha sonlardan iborat				
10	6	11	8	5
Tanlanma o'rta qiymatni toping				

8

6

5

7

Tanlanma quyidagicha sonlardan iborat				
9	5	10	4	7
Tanlanma dispersiyani toping				

5,2

4,5

6

3

Tanlanma quyidagicha sonlardan iborat				
8	12	5	6	9
Tanlanma o'rtacha kvadratik chetlanishni toping				

$6^{0.5}$

$8^{0.5}$

$7^{0.5}$

$5^{0.5}$

Tanlanma quyidagicha sonlardan iborat				
11	6	9	12	7
To'g'rilangan dipersiyani toping				

6,5

4,5

5

5,5

Tanlanma quyidagicha sonlardan iborat				
12	7	10	11	5
To'g'rilangan o'rtacha kvadratik chetlanishni toping				

$8,5^{0.5}$

$6,5^{0,5}$

$7^{0,5}$

$11^{0,5}$

Tanlanma quyidagicha sonlardan iborat				
8	3	6	7	1
Tanlanma Modasini aniqlang?				

aniqlamaydi

1

3

6

Tanlanma quyidagicha sonlardan iborat				
9	4	10	13	7
Tanlanma Medianasini aniqlang?				

9

7

10

11

Ranjirlangan variatsion qatorlarda tanlanma o'rta qiymat qanday xisoblanadi?

$$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}$$

$$\bar{x} = \sqrt[n]{x_1 * x_2 * \dots * x_n}$$

$$\bar{x} = \frac{\frac{1+1+\dots+1}{1}}{\frac{1}{x_1} + \frac{1}{x_2} + \dots + \frac{1}{x_n}}$$

$$\bar{x} = \sqrt[3]{\frac{x_1^3 + x_2^3 + \dots + x_n^3}{n}}$$

Ranjirlangan variatsion qatorlarda tanlanma dispersiya qanday xisoblanadi?

$$\bar{S}^2 = \frac{x_1^2 + \dots + x_n^2}{n} - \left( \frac{x_1 + x_2 + \dots + x_n}{n} \right)^2$$

$$\bar{S}^2 = \frac{x_1 + x_2 + \dots + x_n}{n}$$

$$\bar{S}^2 = \frac{x_1^2 + \dots + x_n^2}{n}$$

$$\bar{S}^2 = \frac{x_1^2 + \dots + x_n^2}{n-1} - \left( \frac{x_1 + x_2 + \dots + x_n}{n-1} \right)^2$$

Ranjirlangan variatsion qatorlarda Moda qanday aniqlanadi?

Moda aniqlanmaydi

Eng ko‘p qatnashgan  $x_i$  varianta chastotasiga teng

$$M_o = \begin{cases} x_{\left[\frac{n}{2}\right]+1}, & \text{agar } n - \text{toq} \\ \frac{x_{\frac{n}{2}} + x_{\frac{n}{2}+1}}{2}, & \text{agar } n - \text{juft} \end{cases}$$

Variantalarning eng kattasiga teng

Ranjirlangan variatsion qatorlarda **Medianasi** qanday aniqlanadi?

$$M_e = \begin{cases} x_{\left[\frac{n}{2}\right]+1}, & \text{agar } n - \text{toq} \\ \frac{x_n + x_{\frac{n}{2}+1}}{2}, & \text{agar } n - \text{juft} \end{cases}$$

Mediana aniqlanmaydi

Eng ko‘p qatnashgan  $x_i$  varianta chastotasiga teng

$$M_e = \frac{x_{min} + x_{max}}{2}$$

Ikkinchi tartibli tanlanma boshlang‘ich momentni toping

$$\overline{x^2} = \frac{x_1^2 + \dots + x_n^2}{n}$$

$$\bar{x}^2 = \left( \frac{x_1 + x_2 + \dots + x_n}{n} \right)^2$$

$$\overline{x^3} = \frac{x_1^3 + \dots + x_n^3}{n}$$

$$\bar{x} = \frac{x_1 + x_2 + \dots + x_n}{n}.$$

5;3;7;8;2-sonlardan iborat tanlanma uchun ikkinchi tartibli boshlang‘ich momentni toping?

30.2

29.2

31.2

32.2

Oraliqlar	$n_i$
[0;5)	6
[5;10)	18
[10;15)	10
[15;20)	9
[20;25)	7
	50

Ushbu oraliqli variatsion qator uchun Modani aniqlang?

8

8,3

8,9

10,5

Oraliqlar	$n_i$
[0;5)	6
[5;10)	18
[10;15)	10
[15;20)	9
[20;25)	7
	50

Ushbu oraliqli variatsion qator uchun Medianani aniqlang?

10,5

8

8,7

9,4

Oraliqlar	$n_i$
[0;5)	7
[5;10)	9
[10;15)	10
[15;20)	18
[20;25)	6
	50

Ushbu oraliqli variatsion qator uchun Modani aniqlang?

17

18

18,9

16,5

Oraliqlar	$n_i$
[0;5)	7
[5;10)	9
[10;15)	10
[15;20)	18
[20;25)	6
	50

Ushbu oraliqli variatsion qator uchun Medianani aniqlang?

14,5

15,2

13,8

<15/p>

Oraliqlar	$n_i$
[10;15)	18
[15;20)	6
[20;25)	10
[25;30)	12
[30;35)	4
	50

Ushbu oraliqli variatsion qator uchun Modani aniqlang?

13

12

14

15

Oraliqlar	$n_i$
[10;15)	18
[15;20)	6
[20;25)	10
[25;30)	12
[30;35)	4
	50

Ushbu oraliqli variatsion qator uchun Medianani aniqlang?

20,5

19,7

21,3

19,2

Oraliqlar	$n_i$
[10;15)	7
[15;20)	9
[20;25)	10
[25;30)	6
[30;35)	18
	50

Ushbu oraliqli variatsion qator uchun Modani aniqlang?

32

31

33

30

Oraliqlar	$n_i$
[10;15)	7
[15;20)	9
[20;25)	10
[25;30)	6
[30;35)	18
	50

Ushbu oraliqli variatsion qator uchun Medianani aniqlang?

24,5

24

25,4

24,9

Oraliqlar	$n_i$
[10;15)	6
[15;20)	10
[20;25)	18
[25;30)	6
[30;35)	10
	50

Ushbu oraliqli variatsion qator uchun Modani aniqlang?

22

21

21,5

23

Oraliqlar	$n_i$
[10;15)	6
[15;20)	10
[20;25)	18
[25;30)	6
[30;35)	10
	50

Ushbu oraliqli variatsion qator uchun Medianani aniqlang?

22,5

21,5

22

23

$x_1, x_2, \dots, x_n$  tanlanmadan olingan ixtiyoriy funksiya  $T(x_1, x_2, \dots, x_n)$  ga .....

Statistik baho (statistika) deyiladi

Siljimagan baho deyiladi

Siljigan baho deyiladi

## Effektiv baho deyiladi

Taqsimot funksiyaning noma'lum  $\theta$  parametri uchun shunday  $T(x_1, x_2, \dots, x_n)$  statistika qidiriladiki,  $T(x_1, x_2, \dots, x_n)$  ni  $\theta$  parametr uchun taqribiy qiymat deb olinadi

bu holda  $T(x_1, x_2, \dots, x_n)$  statistika  $\theta$  parametrning nuqtaviy bahosi deyiladi

bu holda  $T(x_1, x_2, \dots, x_n)$  statistika  $\theta$  parametrning oraliq bahosi deyiladi.

bu holda  $T(x_1, x_2, \dots, x_n)$  statistika  $\theta$  parametrning siljimagan bahosi deyiladi.

bu holda  $T(x_1, x_2, \dots, x_n)$  statistika  $\theta$  parametrning effektiv bahosi deyiladi.

Agar noma'lum parametr bitta  $\Theta^*$  son bilan baholansa

u holda bu baho nuqtaviy baho deyiladi

u holda bu baho oraliq baho deyiladi

u holda bu baho absolyut baho deyiladi

u holda bu baho singulyar baho deyiladi

Ikkita son (interval chetlari) bilan aniqlanadigan baho

intervalli (oraliqli) baho deb ataladi.

nuqtali baho deb ataladi.

nisbiy baho deb ataladi

absolyut baho deb ataladi.

$$|\theta - \theta^*| \leq \Delta \text{ tengsizlikning bajarilish ehtimoli } P\{|\theta - \theta^*| \leq \Delta\} = \gamma$$

$\Theta$  parametrning  $\Theta^*$  baho bo'yicha ishonchlilik (ishonchlilik ehtimoli) deyiladi.

$\Theta$  parametrning  $\Theta^*$  baho bo'yicha nisbiy ehtimoli deyiladi.

$\Theta$  parametrning  $\Theta^*$  baho bo'yicha singulyar ehtimoli deyiladi.

$\Theta$  parametrning  $\Theta^*$  baho bo'yicha absolyut ehtimoli deyiladi.

$$P\{|\theta - \theta^*| \leq \Delta\} = \gamma \text{ ehtimol o'rinli bo'lgandagi } [\theta^* - \Delta, \theta^* + \Delta] \text{ interval (oraliq)}$$

noma'lum parametrni berilgan  $\gamma$  ishonchlilik ehtimoli bilan qoplovchi ishonchlilik intervali (oralig'i) deb ataladi.

noma'lum parametrni berilgan  $\gamma$  ishonchlilik bilan qoplovchi yarim intervali (oralig'i) deb ataladi.

noma'lum parametrni berilgan  $\gamma$  ishonchlilik bilan qoplovchi ochiq intervali deb ataladi.

noma'lum parametrni berilgan  $\gamma$  ishonchlilik bilan qoplovchi cheksiz intervali deb ataladi.

$X$  tasodifiy miqdor normal taqsimlangan bo'lib uning o'rtacha kvadratik chetlanishi  $\sigma = 3$ . Tanlanma hajmi  $n = 36$  va bahoning ishonchliliqi  $\gamma = 0,95$  bo'lsin. Noma'lum parametr  $a$ -matematik kutilmaning  $\bar{x}_T$ -tanlanma o'rtachasi bo'yicha ishonchlilik intervalini toping.  $t_{\gamma} = 1.96$

$$(\bar{x}_T - 0,98; \bar{x}_T + 0,98)$$

$$(\bar{x}_T - 0,46; \bar{x}_T + 0,46)$$

$$(\bar{x}_T - 0,23; \bar{x}_T + 0,23)$$

$$(\bar{x}_T - 0,25; \bar{x}_T + 0,25)$$

$X$  tasodifiy miqdor normal taqsimlangan bo'lib uning o'rtacha kvadratik chetlanishi  $\sigma = 3$ . Tanlanma hajmi  $n = 36$  va bahoning ishonchliligi  $\gamma = 0,95$  bo'lsin. Noma'lum parametr  $\sigma$ -matematik kutilmaning  $\bar{x}_T$ -tanlanma o'rtachasi bo'yicha bahoning aniqligini toping.  $t_{\gamma} = 1.96$

**0,98**

**0,46**

**0,23**

**0,25**

Dispersiyasi  $\sigma^2$  noma'lum bo'lgan normal taqsimotning noma'lum matematik kutilmasi  $\mu$  uchun ishonchlilik oralig'i

$$\bar{x} - t_{\gamma} \frac{s}{\sqrt{n}} \leq \mu \leq \bar{x} + t_{\gamma} \frac{s}{\sqrt{n}}$$

$$\bar{x} - \frac{s}{\sqrt{n}} \leq \mu \leq \bar{x} + \frac{s}{\sqrt{n}}$$

$$\bar{x} - \frac{t_{\gamma}}{\sqrt{n}} \leq \mu \leq \bar{x} + \frac{t_{\gamma}}{\sqrt{n}}$$

$$\bar{x} - t_{\gamma} \sqrt{n} \leq \mu \leq \bar{x} + t_{\gamma} \sqrt{n}$$

Dispersiyasi  $\sigma^2$  noma'lum bo'lgan normal taqsimotning noma'lum matematik kutilmasi  $\mu$  uchun ishonchlilik oralig'i idagi  $t_{\gamma}$  qanday topiladi?

Styudent taqsimotidan ishonchlilik ehtimoli  $\alpha = 1 - \gamma$  va erkinlik darajasi  $k=n-1$  larga ko'ra

Pirson taqsimotidan ishonchlilik ehtimoli  $\alpha = 1 - \gamma$  va erkinlik darajasi  $k=n-1$  larga ko'ra

Xi kvadrat taqsimotdan ishonchlilik ehtimoli  $\alpha = 1 - \gamma$  va erkinlik darajasi  $k=n-1$  larga ko'ra

Styudent taqsimotidan ishonchlilik ehtimoli  $\alpha = 1 + \gamma$  va erkinlik darajasi  $k=n-1$  larga ko'ra

Normal taqsimotning  $\sigma^2$  dispersiyasi uchun ishonchlilik oralig'i qanday ko'rinishda bo'ladi?

$$\frac{(n-1)s^2}{u_1} \leq \sigma^2 \leq \frac{(n-1)s^2}{u_2}$$

$$\frac{(n-1)s}{u_1} \leq \sigma^2 \leq \frac{(n-1)s}{u_2}$$

$$\frac{ns^2}{u_1} \leq \sigma^2 \leq \frac{ns^2}{u_2}$$

$$\frac{n*s}{u_1} \leq \sigma^2 \leq \frac{n*s}{u_2}$$

Bosh to`plamning normal taqsimlangan X belgisining noma'lum matematik kutilishi  $\alpha$  ni  $\gamma=0.95$  ishonchilik bilan baholash uchun ishonchli oraliqi toping. Bunda  $S=5$ , tanlanma o'rtacha  $\bar{x}_T = 14$  va tanlanma hajmi  $n=25$  berilgan.  $t_\gamma = 1.96$

$$(12,04; 15,96)$$

$$(12,85; 17,79)$$

$$(14,21; 18,63)$$

$$(19,14; 25,34)$$

Bosh to`plamning X belgisi normal taqsimlangan.  $n=16$  hajmli tanlanma bo'yicha tanlanma o'rtacha  $\bar{x}_T = 20,2$  va tanlanma o'rtacha kvadratik chetlanish  $S=0,8$  topilgan. Noma'lum matematik kutilishi  $\alpha$  ni ishonchli oraliq yordamida  $\gamma=0,95$  ishonchilik bilan baholang.  $n=16$ ;  $t_\gamma=2,13$

$$(19,774; 20,626)$$

$$(18,214; 21,314)$$

$$0.43 < \sigma < 1.14$$

$$0.87 < \sigma < 2.35$$

Bosh to`plamning X belgisi normal taqsimlangan. n=16 hajmli tanlanma bo'yicha tanlanma o'rtacha kvadratik chetlanish S=1 topilgan. Bosh to`plam o'rtacha kvadratik chetlanishi  $\sigma$  ni  $\gamma=0,95$  ishonchlilik ehtimoli bilan qoplaydigan ishonchli oraliqni toping.  $u_1 = 27.49$ ;  $u_2 = 6.26$

$$0,55 < \sigma < 2,40$$

$$0.78 < \sigma < 1.59$$

$$0.43 < \sigma < 1.14$$

$$0.87 < \sigma < 2.35$$

Normal taqsimotning  $\sigma^2$  dispersiyasi uchun ishonchlilik oralig'ini aniqlashdagi  $u_1$ ;  $u_2$  qanday aniqlanadi?

Pirson taqsimoti jadvalidan ishonchlilik ehtimoli  $\alpha = \frac{1-\gamma}{2}$  ( $u_1$  uchun);  $\alpha = \frac{1+\gamma}{2}$  ( $u_2$  uchun); va erkinlik darajasi k=n-1 larga ko'ra

Styudent taqsimoti jadvalidan ishonchlilik ehtimoli  $\alpha = \frac{1-\gamma}{2}$  ( $u_1$  uchun);  $\alpha = \frac{1+\gamma}{2}$  ( $u_2$  uchun); va erkinlik darajasi k=n-1 larga ko'ra

t- taqsimoti jadvalidan ishonchlilik ehtimoli  $\alpha = \frac{1-\gamma}{2}$  ( $u_1$  uchun);  $\alpha = \frac{1+\gamma}{2}$  ( $u_2$  uchun); va erkinlik darajasi k=n-1 larga ko'ra

Pirson taqsimoti jadvalidan ishonchlilik ehtimoli  $\alpha = 1 - \gamma$  ( $u_1$  uchun);  $\alpha = 1 + \gamma$  ( $u_2$  uchun); va erkinlik darajasi k=n-1 larga ko'ra

Qanday shart bajarilganda  $T(x_1, x_2, \dots, x_n)$  statistik bahoga noma'lum  $\theta$  parameter uchun siljimagan baho deviladi?

$$M T(x_1, x_2, \dots, x_n) = \theta$$

$$M T(x_1, x_2, \dots, x_n) \neq \theta$$

$$M T(x_1, x_2, \dots, x_n) > \theta$$

$$M T(x_1, x_2, \dots, x_n) < \theta$$

Qanday shart bajarilganda  $T(x_1, x_2, \dots, x_n)$  statistic bahoga noma'lum  $\theta$  parameter uchun siljigan baho deviladi?

$M T(x_1, x_2, \dots, x_n) \neq \theta$

$M T(x_1, x_2, \dots, x_n) = \theta$

$M T(x_1, x_2, \dots, x_n) > \theta$

$M T(x_1, x_2, \dots, x_n) < \theta$

“tuzatilgan” (“to’g’rilangan”) dispersiya qanday aniqlanadi?

$$S^2 = \frac{n}{n-1} * \bar{S}^2; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S^2 = \frac{n-1}{n} * \bar{S}^2; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S^2 = \frac{1}{n-1} * \bar{S}^2; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S^2 = \frac{n+1}{n-1} * \bar{S}^2; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

“tuzatilgan” (“to’g’rilangan”) o’rtacha kvadratik chetlanish qaysi birida to’g’ri yozilgan?

$$S = \sqrt{\frac{n}{n-1} \bar{S}^2}; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S = \sqrt{\frac{n-1}{n} \bar{S}^2}; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S = \sqrt{\frac{1}{n-1} \bar{S}^2}; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

$$S = \sqrt{\frac{n+1}{n-1} \bar{S}^2}; \quad \bar{S}^2 - \text{tanlanma dispersiya}$$

Qachon  $T_1(x_1, x_2, \dots, x_n)$  siljimagan statistik baho  $T_2(x_1, x_2, \dots, x_n)$  siljimagan statistik bahoga nisbatan effektiv (samarali) baho deviladi?

$$DT_1(x_1, x_2, \dots, x_n) < DT_2(x_1, x_2, \dots, x_n)$$

$$DT_1(x_1, x_2, \dots, x_n) > DT_2(x_1, x_2, \dots, x_n)$$

$$DT_1(x_1, x_2, \dots, x_n) \neq DT_2(x_1, x_2, \dots, x_n)$$

$$DT_1(x_1, x_2, \dots, x_n) = 2 \cdot DT_2(x_1, x_2, \dots, x_n)$$

$\forall \varepsilon > 0$  uchun  $\lim_{n \rightarrow \infty} P(|T_n - \theta| < \varepsilon) = 1$  bo'lsa,  $T_n$  statistik baho  $\theta$  parametr uchun.....

Asosli baho deviladi

Effektiv baho deviladi

Siljimagan baho deviladi

Siljigan baho deviladi

$x_i$	$y_i$	Eng kichik kvadratlar usulida $y = a \cdot x + b$ chiziqli regressiya tenglamasi topilsin
2	4	
3	3	
4	3	
5	2	
5	1	

$$y = -0,7941 \cdot x + 5,6176$$

$$y = 1,0588 \cdot x + 3,1765$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
2	5
3	7
4	7
5	8
5	9

Eng kichik kvadratlar usulida  
 $y = a \cdot x + b$  chiziqli regressiya  
 tenglamasi topilsin

$$y = 1,0588 \cdot x + 3,1765$$

$$y = -0,7941 \cdot x + 5,6176$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
0,2	4
0,25	5
0,25	7
0,5	7
1	9

Eng kichik kvadratlar usulida  
 $y = \frac{a}{x} + b$  regressiya tenglamasi  
 topilsin

$$y = \frac{-1,0556}{x} + 9,7778$$

$$y = \frac{0,9565}{x} - 1,9565$$

$$y = \frac{-1,0741}{x} + 6,4074$$

$$y = \frac{-0,7941}{x} + 5,6176$$

$x_i$	$y_i$
4	1
5	0,5
5	0,25
6	0,2
8	0,2

Eng kichik kvadratlar usulida  
 $y = \frac{1}{a \cdot x + b}$  regressiya tenglamasi  
 topilsin

$$y = \frac{1}{0,9565 \cdot x - 1,9565}$$

$$y = \frac{1}{-1,0741 \cdot x + 6,4074}$$

$$y = \frac{1}{-1,0556 \cdot x + 9,7778}$$

$$y = \frac{1}{-0,9565 \cdot x - 1,9565}$$

$x_i$	$y_i$
0,2	1
0,25	0,5
0,5	0,25
0,5	0,2
1	0,2

Eng kichik kvadratlar usulida  
 $y = \frac{x}{a + b \cdot x}$  regressiya tenglamasi  
 topilsin

$$y = \frac{x}{-1,0741 + 6,4074 \cdot x}$$

$$y = \frac{x}{0,9565 - 1,9565 \cdot x}$$

$$y = \frac{x}{-1,0556 + 9,7778 \cdot x}$$

$$y = \frac{x}{-3,41 + 8,12 \cdot x}$$

$x_i$	$y_i$
1	5
2	4
2	4
3	3
4	3

Eng kichik kvadratlar usulida  
 $y = a \cdot x + b$  chiziqli regressiya  
 tenglamasi topilsin

$$y = -0,6923 \cdot x + 5,4615$$

$$y = 1,0588 \cdot x + 3,1765$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
3	4
4	4
4	5
5	7
6	8

Eng kichik kvadratlar usulida  
 $y = a \cdot x + b$  chiziqli regressiya  
 tenglamasi topilsin

$$y = 1,5 \cdot x - 1$$

$$y = -0,7941 \cdot x + 5,6176$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
0,125	3
0,2	4
0,2	6
0,25	8
0,5	10

$y = \frac{a}{x} + b$	Eng kichik kvadratlar usulida regressiya tenglamasi topilsin

$$y = \frac{-1,2128}{x} + 12,021$$

$$y = \frac{0,9565}{x} - 1,9565$$

$$y = \frac{-1,0741}{x} + 6,4074$$

$$y = \frac{-0,7941}{x} + 5,6176$$

$x_i$	$y_i$
5	0,5
5	0,25
6	0,25
7	0,2
7	0,125

$y = \frac{1}{a \cdot x + b}$	Eng kichik kvadratlar usulida regressiya tenglamasi topilsin

$$y = \frac{1}{1,75 \cdot x - 5,9}$$

$$y = \frac{1}{-1,0741 \cdot x + 6,4074}$$

$$y = \frac{1}{-1,0556 \cdot x + 9,7778}$$

$$y = \frac{1}{0,9565 \cdot x - 1,9565}$$

$x_i$	$y_i$	Eng kichik kvadratlar usulida $y = \frac{x}{a + b \cdot x}$ regressiya tenglamasi topilsin	
0,125	0,5		
0,2	0,25		
0,25	0,2		
0,5	0,125		
0,5	0,0625		

$$y = \frac{x}{-1,7339 + 14,282 \cdot x}$$

$$y = \frac{x}{0,9565 - 1,9565 \cdot x}$$

$$y = \frac{x}{-1,0556 + 9,7778 \cdot x}$$

$$y = \frac{x}{-3,41 + 8,12 \cdot x}$$

$x_i$	$y_i$	Eng kichik kvadratlar usulida $y = a \cdot x + b$ chiziqli regressiya tenglamasi topilsin	
4	6		
4	5		
5	4		
6	4		
7	3		

$$y = -0,7941 \cdot x + 8,5294$$

$$y = 1,0588 \cdot x + 3,1765$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
4	6
4	7
5	8
5	9
6	12

Eng kichik kvadratlar usulida  
 $y = a \cdot x + b$  chiziqli regressiya  
 tenglamasi topilsin

$$y = 2,6429 \cdot x - 4,2857$$

$$y = -0,7941 \cdot x + 5,6176$$

$$y = -1,0556 \cdot x + 9,7778$$

$$y = 0,9565 \cdot x - 1,9565$$

$x_i$	$y_i$
0,125	5
0,125	6
0,2	8
0,25	8
0,5	10

Eng kichik kvadratlar usulida  
 $y = \frac{a}{x} + b$  regressiya tenglamasi  
 topilsin

$$y = \frac{-0,7279}{x} + 11,331$$

$$y = \frac{0,9565}{x} - 1,9565$$

$$y = \frac{-1,0741}{x} + 6,4074$$

$$y = \frac{-0,7941}{x} + 5,6176$$

$x_i$	$y_i$	Eng kichik kvadratlar usulida regressiya tenglamasi $y = \frac{1}{a \cdot x + b}$ topilsin	
3	0,5		
4	0,25		
5	0,2		
6	0,125		
6	0,1		

$$y = \frac{1}{2,3235 \cdot x - 5,3529}$$

$$y = \frac{1}{-1,0741 \cdot x + 6,4074}$$

$$y = \frac{1}{-1,0556 \cdot x + 9,7778}$$

$$y = \frac{1}{0,9565 \cdot x - 1,9565}$$

$x_i$	$y_i$	Eng kichik kvadratlar usulida regressiya tenglamasi $y = \frac{x}{a + b \cdot x}$ topilsin	
0,1	0,5		
0,125	0,5		
0,2	0,25		
0,25	0,2		
0,25	0,1		

$$y = \frac{x}{-0,9236 + 10,326 \cdot x}$$

$$y = \frac{x}{0,9565 - 1,9565 \cdot x}$$

$$y = \frac{x}{-1,0556 + 9,7778 \cdot x}$$

$$y = \frac{x}{-3,41 + 8,12 \cdot x}$$

X uzlusiz tasodifiy miqdor  $a$  va  $\sigma$  parametrlı normal qonun bo'yicha taqsimlangan deyiladi, agar uning zichlik funksiyasi qanday ko'rinishda bo'lsa?

$$f(x) = \frac{1}{\sigma \cdot \sqrt{2\pi}} e^{-\frac{(x-a)^2}{2\sigma^2}}$$

$$f(x) = \frac{1}{\sigma \cdot \sqrt{2\pi}} e^{-\frac{x^2}{2\sigma^2}}$$

$$f(x) = \frac{1}{\sqrt{2\pi}} e^{-\frac{(x-a)^2}{2\sigma^2}}$$

$$f(x) = \frac{1}{\sigma \cdot \sqrt{2}} e^{-\frac{(x-a)^2}{2\sigma^2}}$$

X uzlusiz tasodifiy miqdor  $a$  va  $\sigma$  parametrlı normal qonun bo'yicha taqsimlangan deyiladi, agar uning taqsimot funksiyasi qanday ko'rinishda bo'lsa?

$$F_\xi(x) = \frac{1}{\sigma \sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{(x-a)^2}{2\sigma^2}} dx$$

$$F_\xi(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{(x-a)^2}{2\sigma^2}} dx$$

$$F_\xi(x) = \frac{1}{\sigma \sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{(x-a)^2}{2\sigma^2}} dx$$

$$F_\xi(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^x e^{-\frac{x^2-a}{2\sigma^2}} dx$$

X uzlusiz tasodifiy miqdor  $f_\xi(x) = \frac{1}{\sqrt{\pi}} e^{-x^2-2x-1}$  zichlik funksiya bilan berilgan. X tasodifiy miqdor matematik kutilmasi va dispersiyasi topilsin.

$$MX = -1; \quad DX = 0.5$$

$$MX = +1; \quad DX = 0.5$$

$$MX = -1; \quad DX = 2$$

$$MX = 0; \quad DX = 1/2$$

X uzlucksiz tasodifyi miqdori  $f_x(x) = \frac{1}{\sqrt{\pi}} e^{-x^2}$  zichlik funksiya bilan berilgan. X tasodifyi miqdori matematik kutilmasi va dispersiyasi topilsin.

$$MX = 0; \quad DX = 0.5$$

$$MX = -1; \quad DX = 1/2$$

$$MX = +1; \quad DX = 2$$

$$MX = -0.5; \quad DX = 1/2$$

X uzlucksiz tasodifyi miqdori  $f_x(x) = \frac{1}{\sqrt{0.5\pi}} e^{-2x^2-4x-2}$  zichlik funksiya bilan berilgan. X tasodifyi miqdori matematik kutilmasi va dispersiyasi topilsin.

$$MX = -1; \quad DX = 0.25$$

$$MX = +1; \quad DX = 1/4$$

$$MX = 0; \quad DX = 1/2$$

$$MX = -1; \quad DX = 1/2$$

X uzlucksiz tasodifyi miqdori  $f_x(x) = \frac{1}{\sqrt{\pi}} e^{-x^2-6x-9}$  zichlik funksiya bilan berilgan. X tasodifyi miqdori matematik kutilmasi va dispersiyasi topilsin.

$$MX = -3; \quad DX = 0.5$$

$$MX = +3; \quad DX = 1/2$$

$$MX = -2; \quad DX = 1/4$$

$$MX = -1; \quad DX = 1/4$$

X uzlusiz tasodifiy miqdor  $\lambda$  parametrli ko'rsatkichli taqsimotga ega bo'lsa, taqsimot funksiyasi qanday ko'rinishda bo'ladi?

$$F(x) = \begin{cases} 1 - e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$F(x) = \begin{cases} -e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$F(x) = \begin{cases} 1 - e^{\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$F(x) = \begin{cases} 1 + e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

Ko'rsatkichli taqsimot qonuniga bo'y sunuvchi tasodifiy miqdorning zichlik funksiyasi qaysi biri ?

$$f(x) = \begin{cases} \lambda e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$f(x) = \begin{cases} -\lambda e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$f(x) = \begin{cases} -\lambda e^{\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$$f(x) = \begin{cases} e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

$f(x) = \begin{cases} \lambda e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$  Ko'rsatkichli taqsimot qonuniga bo'y sunuvchi tasodifiy miqdorning matematik kutilmasi nimaga teng?

$$M(X) = \frac{1}{\lambda}$$

$$M(X) = \lambda$$

$$M(X) = -\lambda$$

$$M(X) = -\frac{1}{\lambda}$$

$f(x) = \begin{cases} \lambda e^{-\lambda x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$  Ko'rsatkichli taqsimot qonuniga bo'y sunuvchi tasodifiy miqdorning dispersiyasi nimaga teng?

$$D(X) = \frac{1}{\lambda^2}$$

$$D(X) = \lambda$$

$$D(X) = -\lambda$$

$$D(X) = \frac{1}{\lambda}$$

$f(x) = \begin{cases} 0.2e^{-0.2x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$  Ko'rsatkichli taqsimot qonuniga bo'y sunuvchi tasodifiy miqdorning matematik kutilmasi nimaga teng?

$$f(x) = \begin{cases} 0.2e^{-0.2x}; & x \geq 0 \\ 0; & x < 0 \end{cases}$$

Ko'rsatkichli taqsimot qonuniga bo'y sunuvchi tasodifiy miqdorning dispersiyasi nimaga teng?

$[a;b]$  oraliqda tekis taqsimlangan tasodifiy miqdor taqsimot funksiyasi qanday ko'rinishda bo'ladi?

$$F(x) = \begin{cases} 0; & x < a \\ \frac{x-a}{b-a}; & a \leq x < b \\ 1; & x \geq b \end{cases}$$

$$F(x) = \begin{cases} 0; & x < a \\ \frac{x}{b-a}; & a \leq x < b \\ 1; & x \geq b \end{cases}$$

$$F(x) = \begin{cases} 0; & x < a \\ \frac{x-a}{b}; & a \leq x < b \\ 1; & x \geq b \end{cases}$$

$$F(x) = \begin{cases} -1; & x < a \\ \frac{x-a}{b-a}; & a \leq x < b \\ 1; & x \geq b \end{cases}$$

$[a; b]$  oraliqda tekis taqsimlangan tasodifiy miqdor zichlik funksiyasi qanday ko‘rinishda bo‘ladi?

$$f(x) = \begin{cases} 0; & x \in [a; b] \\ \frac{1}{b-a}; & x \notin [a, b] \end{cases}$$

$$f(x) = \begin{cases} 0; & x \in [a; b] \\ \frac{a}{b-a}; & x \notin [a, b] \end{cases}$$

$$f(x) = \begin{cases} 0; & x \in [a; b] \\ \frac{x-a}{b-a}; & x \notin [a, b] \end{cases}$$

$$f(x) = \begin{cases} 0; & x < a \\ \frac{x-a}{b-a}; & a \leq x < b \\ 1; & x \geq b \end{cases}$$

$[a; b]$  oraliqda tekis taqsimlangan tasodifiy miqdor matematik kutilmasi nimaga teng?

$$MX = \frac{a+b}{2}$$

$$MX = \frac{a-b}{2}$$

$$MX = \frac{a*b}{2}$$

$$MX = \frac{a}{b}$$

$[a; b]$  oraliqda tekis taqsimlangan tasodifiy miqdor dispersiyasi nimaga teng?

$$DX = \frac{(b-a)^2}{12}$$

$$DX = \frac{a+b}{2}$$

$$DX = \frac{b-a}{12}$$

$$DX = \frac{(a+b)^2}{12}$$

[−3;5] oraliqda tekis taqsimlangan tasodify miqdor matematik kutilmasi nimaga teng?

1

2

3

4

[−2;4] oraliqda tekis taqsimlangan tasodify miqdor dispersiyasi nimaga teng?

3

2

1

5

[−4;6] oraliqda tekis taqsimlangan tasodify miqdor matematik kutilmasi nimaga teng?

1

2

3

4

[−4;8] oraliqda tekis taqsimlangan tasodify miqdor dispersiyasi nimaga teng?

12

13

11

10

$x_i$	$n_i$	
-4	17	
0	7	
3	12	
7	8	
10	6	
$\Sigma$	50	

Tanlanma o'rta  
qiymatni toping?

1,68

2,38

3,42

0,66

$x_i$	$n_i$	
-4	17	
0	7	
3	12	
7	8	
10	6	
$\Sigma$	50	

Tanlanma dispersiyani  
toping?

24,6176

20,4176

16,4425

27,2424

$x_i$	$n_i$	
-4	17	Tanlanma o'rtacha
0	7	kvadratik chetlanishni toping
3	12	
7	8	
10	6	
$\Sigma$	50	

$x_i$	$n_i$	
-4	17	To'g'rilangan
0	7	dispersiyani toping?
3	12	
7	8	
10	6	
$\Sigma$	50	

4,961613

4,010101

5,535457

3,356789

$x_i$	$n_i$	
-4	17	
0	7	Modani aniqlang?
3	12	
7	8	
10	6	
$\Sigma$	50	

25,12

24,06

26,78

21,23

$x_i$	$n_i$
-4	17
0	7
3	12
7	8
10	6
$\Sigma$	50

Medianani aniqlang?

-4

0

7

3

$x_i$	$n_i$
-4	17
0	7
3	12
7	8
10	6
$\Sigma$	50

To'g'rilangan o'rtacha  
kvadratik chetlanishni toping?

3

12

-4

0

$x_i$	$n_i$
-4	17
0	7
3	12
7	8
10	6
$\Sigma$	50

Empirik taqsimot  
funksiya ko'rinishini toping?

$$F_n(x) = \begin{cases} 0; & x < -4 \\ 0,34; & -4 \leq x < 0 \\ 0,48; & 0 \leq x < 3 \\ 0,72; & 3 \leq x < 7 \\ 0,88; & 7 \leq x < 10 \\ 1; & x \geq 10 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < -4 \\ 0,25; & -4 \leq x < 0 \\ 0,48; & 0 \leq x < 3 \\ 0,79; & 3 \leq x < 7 \\ 0,85; & 7 \leq x < 10 \\ 1; & x \geq 10 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < -4 \\ 0,14; & -4 \leq x < 0 \\ 0,28; & 0 \leq x < 3 \\ 0,62; & 3 \leq x < 7 \\ 0,98; & 7 \leq x < 10 \\ 1; & x \geq 10 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < -4 \\ 0,24; & -4 \leq x < 0 \\ 0,52; & 0 \leq x < 3 \\ 0,77; & 3 \leq x < 7 \\ 0,85; & 7 \leq x < 10 \\ 1; & x \geq 10 \end{cases}$$

$x_i$	$n_i$	
5	10	Tanlanma o'rta
9	7	qiymatni toping?
12	9	
16	6	
19	18	
$\Sigma$	50	

13,18

11,08

15,04

14,28

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

Tanlanma dispersiyani  
toping?

29,2276

31,24256

24,24256

27,2276

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

Tanlanma o'rtacha  
kvadratik chetlanishni toping

5,406256

6,121245

4,835364

4,253698

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

To'g'rilangan  
dispersiyani toping?

29,82408

33,21457

31,24589

27,12365

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

Modani aniqlang?

19

18

5

50

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

Medianani aniqlang?

12

9

19

5

$x_i$	$n_i$
5	10
9	7
12	9
16	6
19	18
$\Sigma$	50

To'g'rilangan o'rtacha

kvadratik chetlanishni toping?

5,461143

6,253547

4,253974

6,983541

$x_i$	$n_i$		
5	10		
9	7		
12	9		
16	6		
19	18		
	50		

Empirik taqsimot  
funksiya ko'rinishini toping?

$$F_n(x) = \begin{cases} 0; & x < 5 \\ 0,20; & 5 \leq x < 9 \\ 0,34; & 9 \leq x < 12 \\ 0,52; & 12 \leq x < 16 \\ 0,64; & 16 \leq x < 19 \\ 1; & x \geq 19 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < 5 \\ 0,22; & 5 \leq x < 9 \\ 0,44; & 9 \leq x < 12 \\ 0,58; & 12 \leq x < 16 \\ 0,84; & 16 \leq x < 19 \\ 1; & x \geq 19 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < 5 \\ 0,26; & 5 \leq x < 9 \\ 0,38; & 9 \leq x < 12 \\ 0,62; & 12 \leq x < 16 \\ 0,74; & 16 \leq x < 19 \\ 1; & x \geq 19 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < 5 \\ 0,20; & 5 \leq x < 9 \\ 0,34; & 9 \leq x < 12 \\ 0,52; & 12 \leq x < 16 \\ 0,64; & 16 \leq x < 19 \\ 2; & x \geq 19 \end{cases}$$

$x_i$	$n_i$	
2	8	Tanlanma o'rta
6	16	qiymatni toping?
9	14	
13	7	
16	5	
$\Sigma$	50	

8,18

9,28

10,12

7,42

$x_i$	$n_i$	
2	8	Tanlanma dispersiyani
6	16	toping?
9	14	
13	7	
16	5	
$\Sigma$	50	

17,1876

18,8568

16,1635

19,2538

$x_i$	$n_i$	
2	8	Tanlanma o'rtacha
6	16	kvadratik chetlanishni toping
9	14	
13	7	
16	5	
$\Sigma$	50	

4,145793

5,553698

6,321458

3,214569

$x_i$	$n_i$
2	8
6	16
9	14
13	7
16	5
$\Sigma$	50

To'g'rilangan  
dispersiyani toping?

17,53837

18,54789

19,24587

16,25684

$x_i$	$n_i$
2	8
6	16
9	14
13	7
16	5
$\Sigma$	50

Modani aniqlang?

6

16

9

2

$x_i$	$n_i$
2	8
6	16
9	14
13	7
16	5
$\Sigma$	50

Medianani aniqlang?

9

6

14

16

$x_i$	$n_i$		
2	8		To'g'rilangan o'rtacha
6	16		kvadratik chetlanishni toping?
9	14		
13	7		
16	5		
$\Sigma$	50		

4,187883

5,553544

6,214536

2,235544

$x_i$	$n_i$		
2	8		Empirik taqsimot
6	16		funksiyani toping?
9	14		
13	7		
16	5		
$\Sigma$	50		

$$F_n(x) = \begin{cases} 0; & x < 2 \\ 0,16; & 2 \leq x < 6 \\ 0,48; & 6 \leq x < 9 \\ 0,76; & 9 \leq x < 13 \\ 0,90; & 13 \leq x < 16 \\ 1; & x \geq 16 \end{cases}$$

$$F_n(x) = \begin{cases} -1; & x < 2 \\ 0,16; & 2 \leq x < 6 \\ 0,48; & 6 \leq x < 9 \\ 0,76; & 9 \leq x < 13 \\ 0,90; & 13 \leq x < 16 \\ 1; & x \geq 16 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < 2 \\ 0,16; & 2 \leq x < 6 \\ 0,48; & 6 \leq x < 9 \\ 0,76; & 9 \leq x < 13 \\ 0,90; & 13 \leq x < 16 \\ 2; & x \geq 16 \end{cases}$$

$$F_n(x) = \begin{cases} 0; & x < 2 \\ 0,18; & 2 \leq x < 6 \\ 0,44; & 6 \leq x < 9 \\ 0,78; & 9 \leq x < 13 \\ 0,91; & 13 \leq x < 16 \\ 1; & x \geq 16 \end{cases}$$

Diskret variatsion qatorlarda tanlanma o'rta qiymat qanday xisoblanadi?

$$\bar{x} = \frac{x_1 \cdot n_1 + x_2 \cdot n_2 + \dots + x_k \cdot n_k}{n_1 + n_2 + \dots + n_k}$$

$$\bar{x} = \sqrt[n]{\frac{x_1}{n_1} * \frac{x_2}{n_2} * \dots * \frac{x_k}{n_k}}$$

$$\bar{x} = \frac{\frac{1+1+\dots+1}{x_1+x_2+\dots+x_k}}{n_1+n_2+\dots+n_k}$$

$$\bar{x} = \sqrt[n]{\frac{x_1^2 \cdot n_1 + x_2^2 \cdot n_2 + \dots + x_k^2 \cdot n_k}{n}}$$

Diskret variatsion qatorlarda tanlanma dispersiya qanday xisoblanadi?

$$\bar{S}^2 = \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k} - \left( \frac{x_1 \cdot n_1 + x_2 \cdot n_2 + \dots + x_k \cdot n_k}{n_1 + n_2 + \dots + n_k} \right)^2$$

$$\bar{S}^2 = \left( \frac{x_1 \cdot n_1 + x_2 \cdot n_2 + \dots + x_k \cdot n_k}{n_1 + n_2 + \dots + n_k} \right)^2$$

$$\bar{S}^2 = \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k}$$

$$\bar{S}^2 = \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k} + \left( \frac{x_1 \cdot n_1 + x_2 \cdot n_2 + \dots + x_k \cdot n_k}{n_1 + n_2 + \dots + n_k} \right)^2$$

Diskret variatsion qatorlarda **Moda** qanday aniqlanadi?

Eng katta chastotaga ega bo'lgan variantaga teng

Eng ko'p qatnashgan  $x_i$  varianta chastotasiga teng

$$M_o = \begin{cases} x_{\left[\frac{n}{2}\right]+1}, & \text{agar } n - \text{toq} \\ \frac{x_{\frac{n}{2}} + x_{\frac{n}{2}+1}}{2}, & \text{agar } n - \text{juft} \end{cases}$$

Variantalarning eng kattasiga teng

Diskret variatsion qatorlarda **Mediana** qanday aniqlanadi?

Tanlanma hajmining yarmi erishiladigan  $x_t$ -variantaga teng.

Mediana aniqlanmaydi

Eng ko'p qatnashgan  $x_i$  varianta chastotasiga teng

$$M_e = \frac{x_{min} + x_{max}}{2}$$

Ikkinchi tartibli tanlanma boshlang'ich momentini toping

$$\overline{x^2} = \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k}$$

$$\bar{x}^2 = \left( \frac{x_1 + x_2 + \dots + x_n}{n} \right)^2$$

$$\overline{\chi^2} = \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k}$$

$$\bar{\chi}^2 = \left( \frac{x_1^2 \cdot n_1 + \dots + x_k^2 \cdot n_k}{n_1 + n_2 + \dots + n_k} \right)^2$$

Talabalar imtixon xonasiga kirib bitta bilet olib, xonada o'tirib tayyorlanib, navbat bilan imtixon savollariga og'zaki javob beradi. Talaba jami 30 ta biletdan 20 tasiga tavyor bo'lsa, talaba imtixonga nechanchi bo'lib kirgani yaxshi?

Farqi yo'q

Birinchi bo'lib kirgani yaxshi

Oxirgi bo'lib kirgani yaxshi

Ikkinchi bo'lib kirgani yaxshi

Ofisda A, B, C, D kompaniyalarda ishlab chiqarilgan mos ravishda 4; 6; 8; 2 ta noutbuk bor. Ushbu noutbukalarni kafolat muddatigacha ishlab berish ehtimollari 70%, 80%, 85%, 55% ni tashkil qilsa, tanlangan noutbuk kafolat muddatigacha ishlab berish ehtimolini toping?

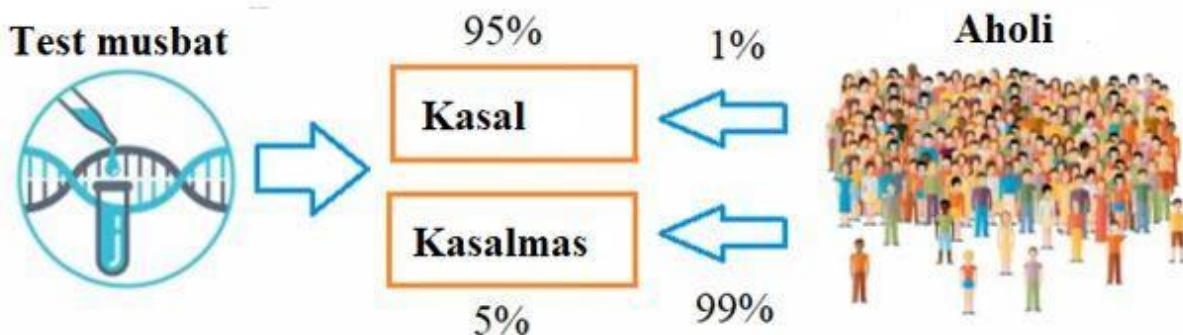
0.775

0.645

0.825

0.589

COVID-19 ga tekshiradigan ma'lum bir test 0.95 ehtimollik bilan xato qilmay virus borligini aniqlay olsin. Shuningdek ma'lumki aholining o'rta hisobda 1% ushbu kasallikka chalinishi aniq bo'lsa, tekshiruvdan o'tgan odamda test musbat ko'rsatsa, ushbu odamning haqiqatda qanday ehtimollik bilan koronavirus bo'lgan bo'lish ehtimolini aniqlang?



0.16

0.18

0.93

0.85

To'la ehtimollik formulasini toping?

$$P(A) = P(B_1) \cdot P(A/B_1) + P(B_2) \cdot P(A/B_2) + \dots + P(B_n) \cdot P(A/B_n)$$

$$P(B_i/A) = \frac{P(B_i) \cdot P(A/B_i)}{P(B_1) \cdot P(A/B_1) + P(B_2) \cdot P(A/B_2) + \dots + P(B_n) \cdot P(A/B_n)}; \quad i=1, \dots, n$$

$$P(A \cap B) = P(A) * P(B)$$

$$P(A \cap B) = P(A) * P_A(B)$$

Bayes formulasini toping?

$$P(B_i/A) = \frac{P(B_i) \cdot P(A/B_i)}{P(B_1) \cdot P(A/B_1) + P(B_2) \cdot P(A/B_2) + \dots + P(B_n) \cdot P(A/B_n)}; \quad i=1, \dots, n$$

$$P(A) = P(B_1) \cdot P(A/B_1) + P(B_2) \cdot P(A/B_2) + \dots + P(B_n) \cdot P(A/B_n)$$

$$P(A \cap B) = P(A) * P(B)$$

$$P(A \cap B) = P(A) * P_A(B)$$

Birinchi idishda 3 ta оq 4 ta qora, ikkinchi idishda 5 ta оq, 8 ta qora shar bor. Har bir idishdan bittadan shar olinib uchinchi bo'sh idishga solindi. Uchinchi idishdan olingan sharni оq bo'lish ehtimoli topilsin?

37/91

54/91

35/91

56/91

Birinchi idishda 3 ta оq 4 ta qora, ikkinchi idishda 5 ta оq, 8 ta qora shar bor. Har bir idishdan bittadan shar olinib uchinchi bo'sh idishga solindi. Uchinchi idishdan olingan sharni qora bo'lish ehtimoli topilsin?

54/91

37/91

35/91

56/91

Birinchi idishda 1 ta oq 3 ta qora, ikkinchi idishda 6 ta oq, 4 ta qora shar bor, uchinchi idishda 2 ta oq va 5 ta qora shar bor. Birinchi idishdan bitta shar olinib ikkinchi idishga, ikkinchi idishdan bitta shar olinib uchinchi idishga solindi. Uchinchi idishdan olingan sharni oq bo'lish ehtimoli topilsin?

113/352

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Birinchi idishda 1 ta oq 3 ta qora, ikkinchi idishda 6 ta oq, 4 ta qora shar bor, uchinchi idishda 2 ta oq va 5 ta qora shar bor. Birinchi idishdan bitta shar olinib ikkinchi idishga, ikkinchi idishdan bitta shar olinib uchinchi idishga solindi. Uchinchi idishdan olingan sharni qora bo'lish ehtimoli topilsin?

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113/359

119/359

240/359

Iqtisodiy o'sish davrida bank mijozini kreditni qaytarmaslik ehtimoli 0.04 ga teng. Iqtisodiy krizis davrida esa ushbu ehtimollik 0.13 ga teng. Aytaylik iqtisodiy o'sish boshlanishi ehtimoli 0.65 ga teng bo'lsa, bankning tasodifiy tanlangan mijozni olgan kreditini qaytarmaslik ehtimoli nimaga teng?

0,0715

0,0675

0,0825

0,0595

Iqtisodiy o'sish davrida bank mijozini kreditni qaytarmaslik ehtimoli 0.04 ga teng. Iqtisodiy krizis davrida esa ushbu ehtimollik 0.13 ga teng. Aytaylik iqtisodiy o'sish boshlanishi ehtimoli 0.65 ga teng bo'lsa, bankning tasodifiy tanlangan mijozni olgan kreditini qaytarmaslik ehtimoli nimaga teng?

0,9285

0,7065

0,6805

0,8595