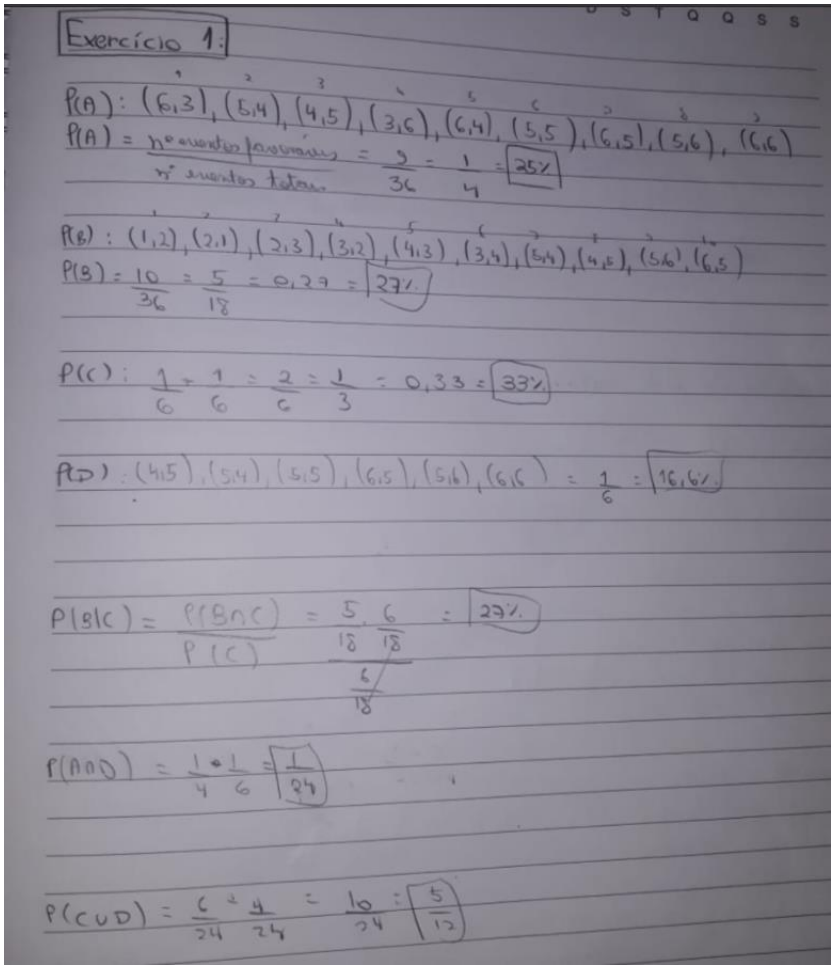
Universidade Federal de Uberlândia

Nome: Carlos Augusto Gomes Neto

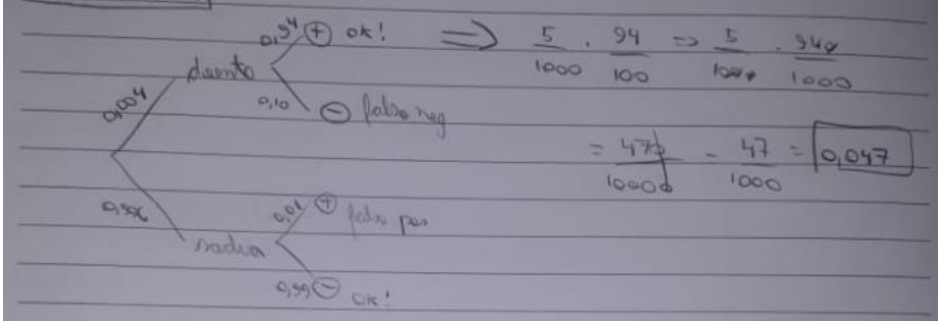
11821BCC016

Lista 1 de estatística computacional



D S T Q Q S S

Exercício 2



$\Rightarrow \frac{5}{1000} \cdot \frac{94}{100} \Rightarrow \frac{5}{1000} \cdot \frac{940}{1000}$

$= \frac{470}{10000} = \frac{47}{1000} = \boxed{0,047}$

A probabilidade é de 4,7%.

Exercício 3

Urna I: 6 pretas, 3 brancas, 5 vermelhas — 5 $\Rightarrow \frac{1}{6} \cdot \frac{5}{14} = \boxed{\frac{5}{84}}$

Urna II: 4 pretas, 4 brancas, 2 vermelhas — 1, 4 $\Rightarrow \frac{1}{3} \cdot \frac{2}{10} = \boxed{\frac{1}{15}}$

Urna III: 4 pretas, 2 brancas, 7 vermelhas — 2, 3, 6 $\Rightarrow \frac{1}{2} \cdot \frac{7}{13} = \boxed{\frac{7}{26}}$

a) $\frac{5}{84} + \frac{1}{15} + \frac{7}{26} = \frac{385 + 364 + 1470}{5460} \Rightarrow \boxed{39\%}$

b) A probabilidade é de $\frac{1}{2} \cdot \frac{14}{37} = \boxed{\frac{7}{37}}$

D S T Q Q S S

EXERCÍCIO 4

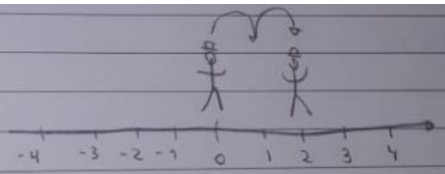
D
R ⇒ (D,R,N,J), (R,J,N,D), (J,N,R,D), (D,N,R,J)
N (J,R,D,N), (R,J,D,N), (J,R,D,N), (R,N,D,J)
J (D,J,R,N)

24 - 9 = 15

Total de casos: 4! = 24

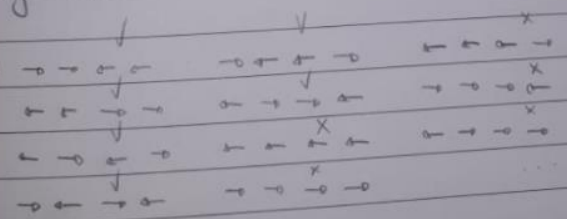
$P = \frac{15}{24} = \frac{5}{8}$

EXERCÍCIO 5



Cara → 1 esquerda
Coroa → 1 direita

a) Concordo. Pois da pergunta que já está, são necessários 2 jogadas cara ou coroa, e se ela tirar alguma cara, será necessário mais um lançamento para ela voltar. Portanto apenas com números pares de jogadas.



probabilidade é de $\frac{6}{24} = \frac{1}{4} = 25\%$

Exercício 6

$P(x=1) = \frac{2}{8}$

$P(x=3) = \frac{2}{8}$

$P(x=5) = \frac{4}{8}$

a) $P(x<4) : P(3) + P(1) = \frac{4}{8} = \boxed{\frac{1}{2}}$

b) $P(x \geq 4) : P(5) = \boxed{\frac{1}{2}}$

Exercício 7

a) X assume 2, 3, 4, 5, 6

b) $P(X=k)$, $X \geq 2$ e $X \leq 6$

$k = x + 1$.

c) $P(x<3) = \frac{1}{5} = \boxed{20\%}$

$P(x>3) = \frac{3}{5} = 0,6 = \boxed{60\%}$

d) $P(x>2) = \frac{4}{5} \cdot \frac{3}{5} = \boxed{\frac{12}{25}}$

Exercício 8

a) $P(x \leq 10) = x \sim f$

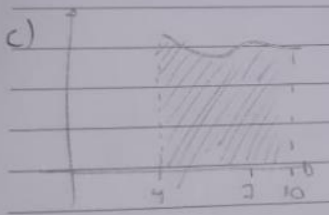
$P(x \in A) = \int f(x)\,dx = \int_{-a}^{10} f\,dx + \int_{4}^{7} f\,dx = 0 + 3 = 3$

b) $f(x \leq 10) = x \sim f$

$P(x \in A) = \int f(x)\,dx$

$\int_{5}^{\infty} f(x)\,dx + \int_{5}^{7} = 0 + 2 = 2$

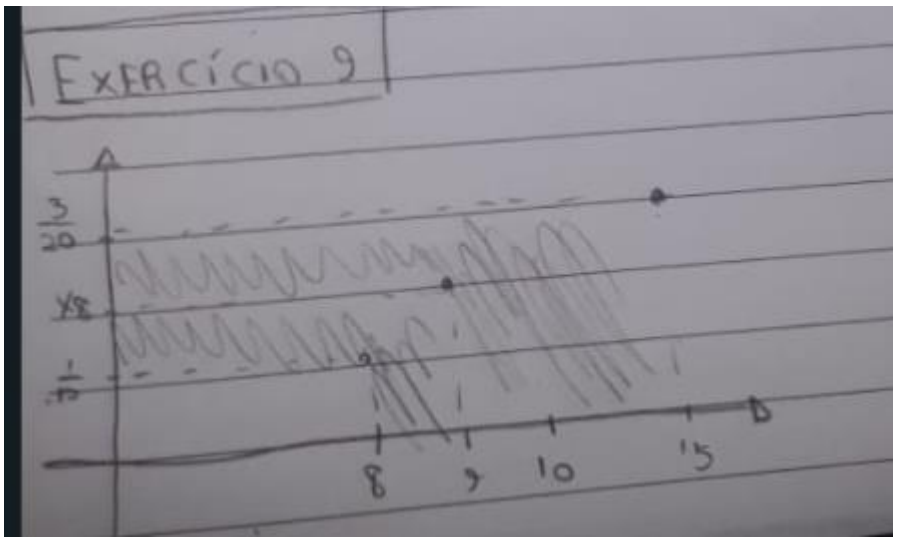
c)

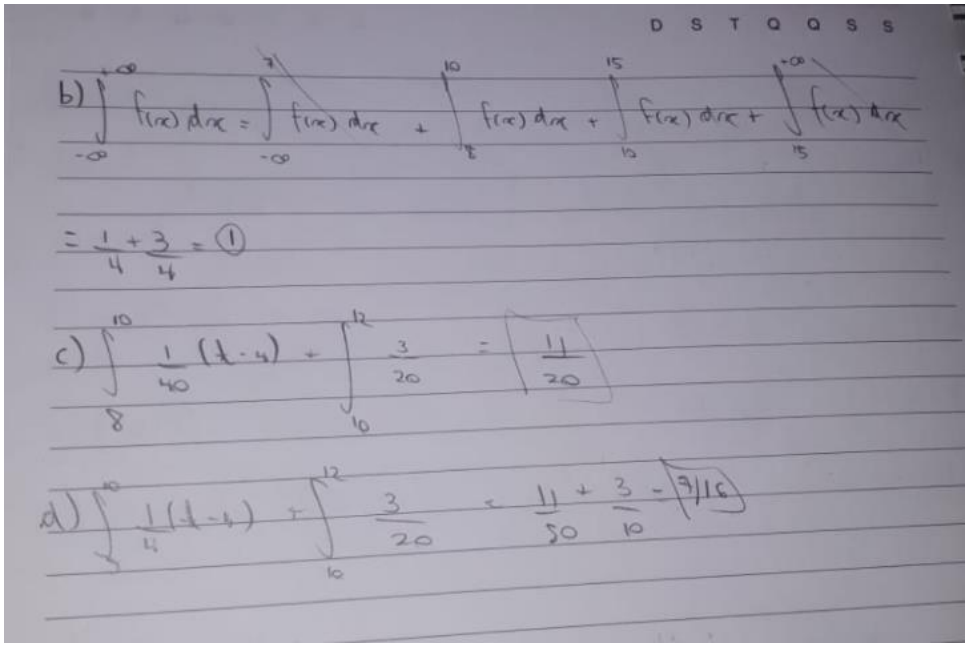


d) $P(x \leq a) = 0,4$

$a = 1,28$

Exercício 9




D S T Q Q S S
b) $\int_{-\infty}^{+\infty} f(x)\,dx = \int_{-\infty}^{7} f(x)\,dx + \int_{7}^{10} f(x)\,dx + \int_{10}^{15} f(x)\,dx + \int_{15}^{-\infty} f(x)\,dx$
$= \frac{1}{4} + \frac{3}{4} = 1$
c) $\int_{8}^{10} \frac{1}{40}(t-4) + \int_{10}^{12} \frac{3}{20} = \frac{11}{20}$
d) $\int_{4}^{10} \frac{1}{4}(t-4) + \int_{10}^{12} \frac{3}{20} = \frac{11}{50} + \frac{3}{10} = \frac{9}{16}$