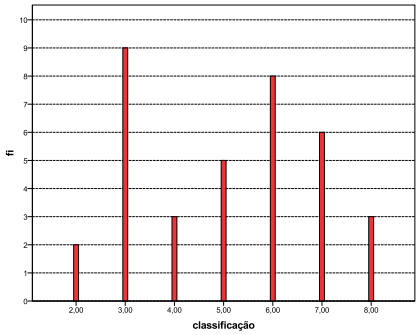
SOLUÇÕES DOS EXERCÍCIOS PROPOSTOS

FICHA Nº1 - DESCRITIVA

1.

a)Variável discreta ordinal

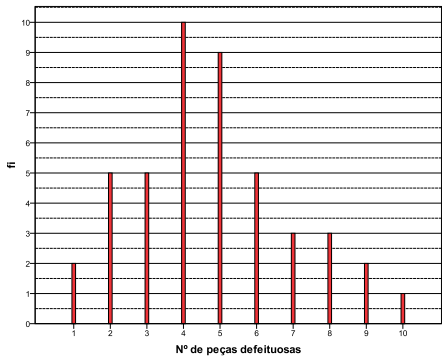
b) $\bar{x} = 5.056$; $s = 1.8197$; c) Mediana=5.0; moda =3



2.

a) Variável discreta

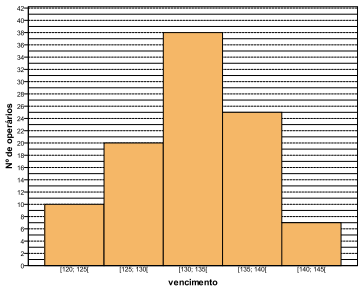
b)



c) $\bar{x} = 4.78$ $s^2 = 4.677$
Mediana=5.0; moda =4

3.

a)



b) $\bar{x} = 132.45$ $s = 5.34$
Mediana=132.6; moda =132.9

c)(i) 68 (ii) 95

4.

a)

xi	fi	fri (%)	Fri (%)
422	2	2	2
427	5	5	7
432	6	6	13
437	14	14	27
442	18	18	45
447	27	27	72
452	19	19	91
457	8	8	99
462	1	1	100
Total	100	100	

b) $\bar{x} = 444.2$, $s = 8.5$

c) 28%

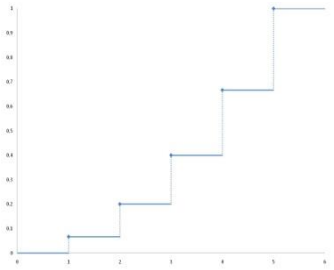
5. a) $\bar{x} = 831.2$, Med=830.59, Mod=830, $s^2 = 647.85$ b) 32% c) 86%

FICHA Nº2 - PROBABILIDADES

1. a) sim b) não c) 0.3077
2. a) 5/6 b) 1/6
3. a) 2/9 b) 5/12
4. a) 1/3 b) 1/6 c) 1/3 d) 5/6
5. a) 1/6 b) 1/2 c) 1/12 d) 9/12
6. a) 1/24 b) 9/24 c) 5/8 d) 1/8
7. a) 3/4 b) 3/4 c) 1/3 d) 1/4 e) 2/3 f) 1/4 g) 3/4 h) 1/3
8. 0.75
9. 1/7
10. 1/13
11. a) falha humana=1/2, falha travões=rebentamento pneu=1/4 b) 0.9524
12. 0.4545
13. a) 0.5

FICHA Nº 3 - DISTRIBUIÇÕES DE PROBABILIDADE

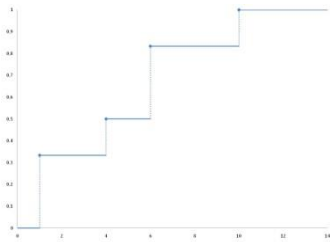
4. $F(x)=\begin{cases} 0 & x<1 \\ 1/15 & 1\le x<2 \\ 3/15 & 2\le x<3 \\ 6/15 & 3\le x<4 \\ 10/15 & 4\le x<5 \\ 1 & x\ge 5 \end{cases}$



5. a) ½

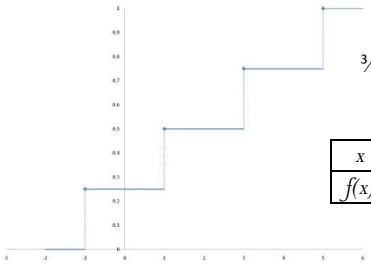
b) 1/6

c)



x	1	4	6	10
$f(x)$	1/3	1/6	1/3	1/6

6. ¾; ¼; ½; ½; ¼;



x	-1	1	3	5
$f(x)$	1/4	1/4	1/4	1/4

7. a) 3/5 b) $2/k(k^2+1)$

8. b) 4/5

c) $F(x)=\begin{cases} 0 & se \quad x\le 2 \\ \frac{1}{5}(x-2) & se \quad 2<x<7 \\ 1 & se \quad x\ge 7 \end{cases}$

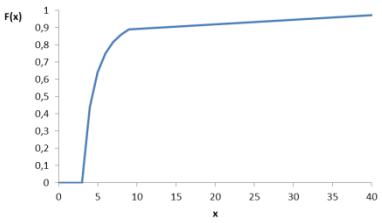
9. a) 0.54; 0.1519 b) $F(x)=\begin{cases} 0 & se \quad x\le 2 \\ \frac{x^2}{16}+\frac{x}{8}-\frac{1}{2} & se \quad 2<x<4 \\ 1 & se \quad x\ge 4 \end{cases}$

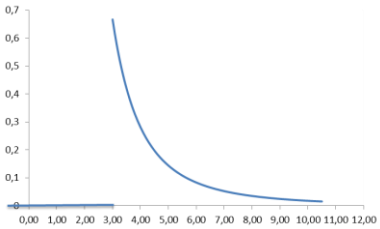
10. a) ¼ b) ¼; ½ c) $F(x)=\begin{cases} 0 & se \quad x\le 0 \\ \frac{1}{2}\sqrt{x} & se \quad 0<x<4 \\ 1 & se \quad x\ge 4 \end{cases}$

11. k = 2

12. a) k=6 b) 0,15625; 0.5 c) $F(x)=\begin{cases} 0 & se \quad x\le 0 \\ 6\left(\frac{x^2}{2}-\frac{x^3}{3}\right) & se \quad 0<x<1 \\ 1 & se \quad x\ge 1 \end{cases}$

13. ½; 0; $f(x)=\begin{cases} 1/2 & -1<x<1 \\ 0 & \text{outros valores} \end{cases}$





14. 0.64 e 0.859 $f(x)=\begin{cases} \frac{18}{x^3}, & x>3 \\ 0, & x\le 3 \end{cases}$

FICHA Nº 4 – ESPERANÇA MATEMÁTICA

1. 1/7; 1.837
2. 3.08; 0.347
3. 1; 1/6
4. a) 3.67; 15; 1.531 b) 183.04
5. a) 1.8205; 3.641; 7.889; 0.327 b) 10.7095

FICHA Nº 5 – FAMÍLIAS DE DISTRIBUIÇÕES

1. a) 0.1901 b) 0.0113 c) 0.3917
2. a) 0.2463 b) 0.8593 c) 3.2
3. a) 0.0198 b) 0.9510 c) 2 d) 1.407
4. a) 0.9 b) 0.99 c) 0.999
5. a) 0.7625 b) 0.8867 c) 0.6492
6. a) 0.0821 b) 0.0653 c) 0.384
7. a) 0 b) 0.997 c) 0.0821 d)0.9179
8. a) 0.034 b) 5
9. a) 0.2231 b) 0.066 c) 0.2525
10. a) 3.6 b) 0.874 c) 0.2125

11. a) 0.1667 b) 0.67
12. 20%
13. a) 0.3297 b) 0.2387
14. a) 0.6065 b) 0.5276
15. a) 0.181 b) 0.2231
16. a) 0.1056 b) 0.3372 c) 0.7492
17. a) 0.0918 b) 27 meses
18. a) 0.1056 b) 11.632 min. c) 11:15
19. a) 0.0668 b) 0.0062 c) 0.9198
20. a) 0.1056 b) 0.0062 c) 0.5934
21. a) 8.8%, 40.82%, 40.82%, 8.8%, 0.38% b) 11 pares
22. 0.0104
23. a) 0.0386 b) 0.0823 c) 0.8731
24. a) 0.0786 b) 0.1423

FICHA Nº 6 – ESTIMADORES PONTUAIS

1. $t_T(\theta^2) = 0$
2. a) W_1, W_3 b) $\text{var}[W_1] = \frac{3}{8}\sigma^2$, $\text{var}[W_3] = 0.34\sigma^2$ c) $ef(W_1, W_3) = 1.103$
3. T_1
4. a)Sim b) $n_1 > \frac{3}{4}n$
5. a) $\frac{\theta+1}{3}$ b) Não

FICHA Nº 7 - DISTRIBUIÇÕES AMOSTRAIS

1. a) 325 b) 2 c) 0.0606 d) 0.8186 e) 0.1587 f) 0.0668
2. a) 0.0132 b) 0.1335 c) 0.6648
3. 0.0244
4. a) 0.8258 b)0.8315
5. a) 4 b) 0.0456

FICHA Nº 8 - INTERVALOS DE CONFIANÇA

1. a) 64.3±6.57 b) 64.3±5.53
2. a) 2.28±0.56 b) (90%) 2.28±.0.32, (95%) 2.28±.0.40
3. 177500±1764
4. a) 45±2.08 b) 45±1.47 c) 45±1.20
5. 136
6.]-4.21, 84.21[
7. a) 330±488.7 b) 330±270.95
8. a) –1.2±2.58 b) 2.58
9. a) 0.28 b) 0,05668
10. 0.082±0.024
11. 0.2±0.064
12. a) 0.58 b) 0.58±0.125,
13. a) 0.35±0.039 b) (95%) 0.35±0.047, (98%) 0.35±0.056
14. –0.27±0.120
15. 0.065±0.0354
16.]2.92, 6.58[
17.]0.000851, 0.0043[
18.]0.163, 0.918[

FICHA Nº 9 - TESTES HIPÓTESES

1. n=39, k=1.32
2. a) α=0.5 b) β=0.3
4. a) i) α=0.3, β=0.8 ii) α=0.3, β=0.6 b) C2
5. a) 0.0559 b) administração
6. b)ponto crítico 0.30256
7. a) α=0.0361

b)

p	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40
função potência	0.0361	0.1841	0.3958	0.6020	0.7639	0.8732	0.9383	0.9729

8. a) 0.8518

b)

θ	2	4	6	8	12	16	20
β	0.0158	0.0855	0.1283	0.1447	0.1455	0.1342	0.1215

9. a)

μ	37	38	39	40
α	0,0006	0,003	0,0122	0,0401

b)

μ	41	42	43	44	45	46	47	48
β	0,08944	0,7734	0,5987	0,4013	0,2266	0,1056	0,0401	0,0122

10. a) depende do valor de prova b) Sim
11. a) Não b) Sim c) Sim
12. Z=2.65, Rej.
13. Z=4.78 Rej.
14. T= -0.51 N.Rej.
15. T= -2.11 Rej.
16. T=0.99 N.Rej.
17. T=4.033 Rej.
18. Z=-3.84 Rej.
19. Z=1.08 N.Rej.
20. Z=4.82 Rej
21. Z=2.60, Rej.
22. Z=2.021 Rej
23. Z=-1.55 N.Rej
24. Z=-2.0 N.Rej.
25. Z= -2.5, Rej.
26. Q=32.11 Rej
27. Q=5.92 N.Rej.
28. F=5.49 Rej

FICHA Nº 10 – ANÁLISE DA VARIÂNCIA

1. a) F=8.42 Rej, b) 0.96±0.503
2. F=12.45 Rej
3. F=12.11 Rej
4. F=39.3 Rej
5. a) F1=51.67 Rej b) F2=23 Rej
6. b) F1=4.25 N.Rej, F2=4.90 N.Rej
7. F1=7.76 Rej, F2=8.07 Rej

FICHA Nº 11 – QUI-QUADRADO

1. Q=35 Rej
2. Q=8.46 Rej
3. Q=20 a) Rej b) Rej
4. Q=29.16 Rej
5. Q=1.4 N.Rej
6. Q=10.502 Rej
7. Q=21.892 Rej
8. Q=13.6 Rej
9. b) 0.0179, 0.1178, 0.3245, 0.3557, 0.1554, 0.0268, 0.0019 c) Q=1.45 N.Rej.

FICHA Nº 12 – REGRESSÃO E CORRELAÇÃO

1. a)1.184 , b)1.184±.248 , c)T1=1.51 N.Rej , d) r=0.845, [0.698, 1.068], e) $E[Y_0] = 1.357$
2. $\hat{Y}_i = 51.27 + 1.518X_1 + 0.675X_2$
3. $\hat{Y}_i = 101.36 - 2.3577X_i + 0.0187X_i^2 - 5E^{-05}X_i^3$
4. k_1=170608, k_2=-2.057
5. a) $\hat{Y}_i = 3.471 - 0.088X_i$ b) T= 57.738 Rej. c) r^2=0.981 d)]-0.100, -0.076[
6. SPSS ou Excel
7. a) $\hat{Y}_i = -124.57 + 1.659 * QI + 1.439 * Horas$ b) 63.26
8. r =0.743
9. SPSS ou Excel
10. R =-0.334 N.Rej