Giovanni J. Alves Júnior

Exer. Cap. 5

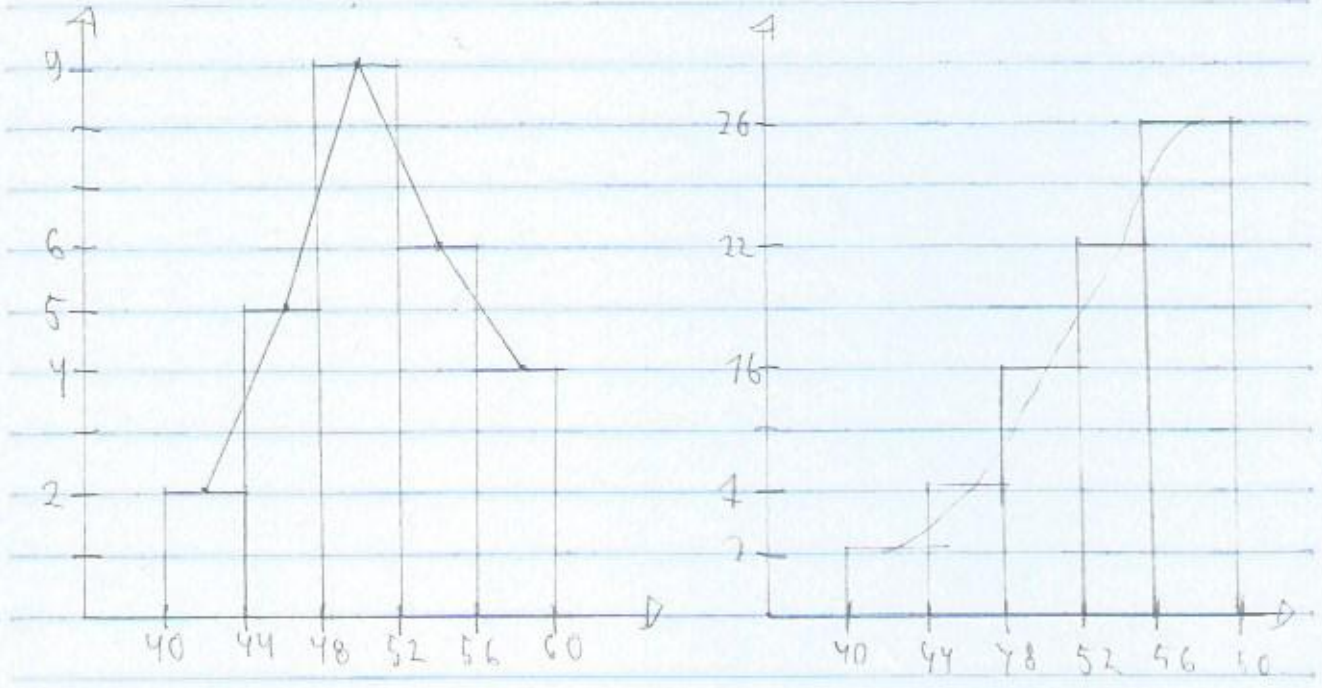
7) 1.)

Rotas	x_i	f_i	F_i	f_r (%)	F_r (%)	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
40 ⊢ 44	42	2	2	7,69	7,69	84	153,83
44 ⊢ 48	46	5	7	19,23	26,92	230	173,76
48 ⊢ 52	50	9	16	34,62	61,54	450	5,34
52 ⊢ 56	54	6	22	23,08	84,62	324	62,60
56 ⊢ 60	58	4	26	15,38	100	232	209,10
		$\sum = 26$		$\sum = 100$		$\sum = 1320$	$\sum = 544,63$

$\bar{x} = 1320/26 = 50,77$ / $s^2 = 544,63/25 = 21,79$

md = classe $48 \vdash 52$ / $s_x = \sqrt{21,79} = 4,67$

$moda$ = classe $48 \vdash 52$ /

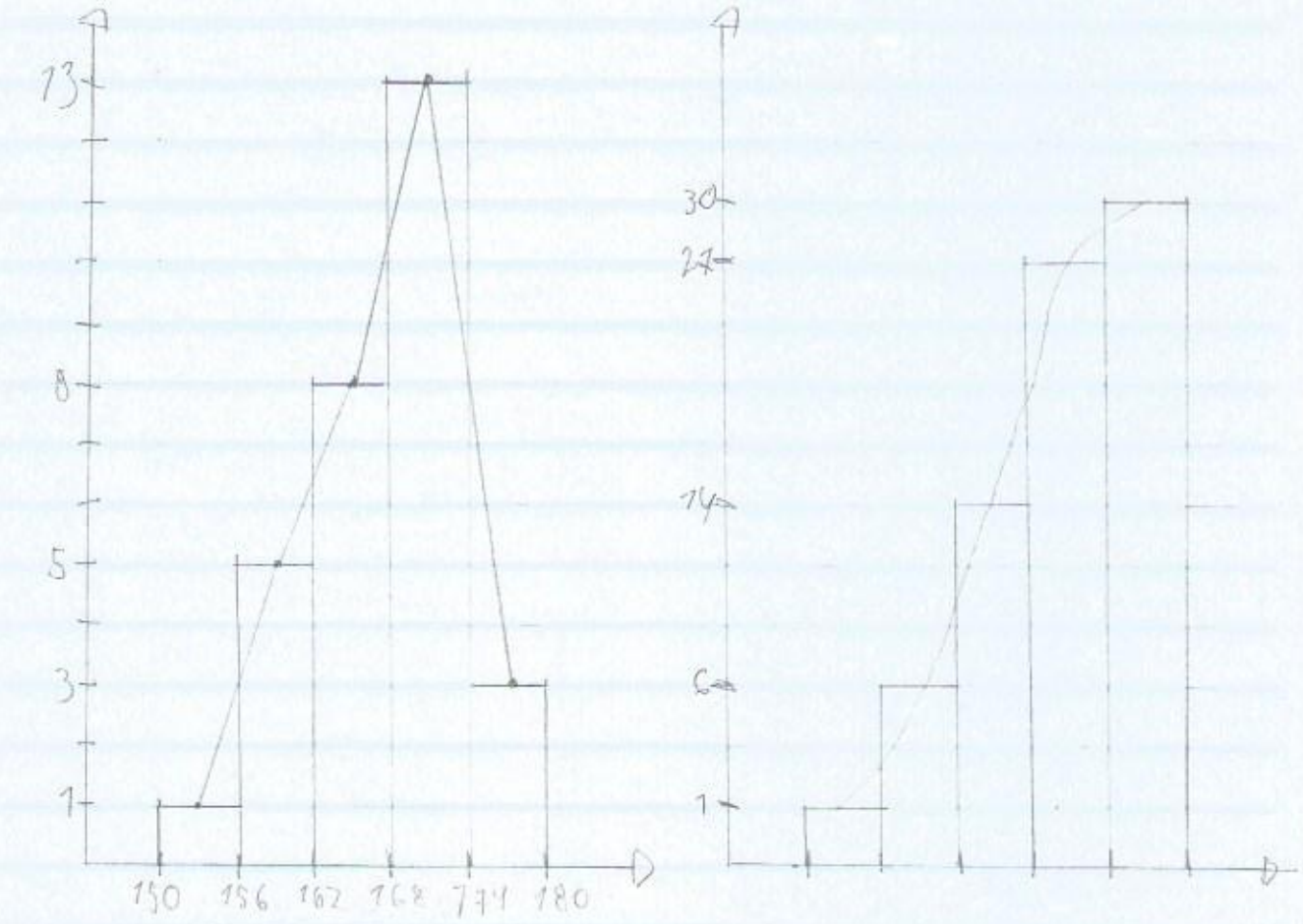


11.)

Estaturas	x_i	f_i	E_i	$f_r(\%)$	$Fr(x_i)$	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
150 ⊢ 156	153	1	1	3,33	3,33	153	207,36
156 ⊢ 162	159	5	6	16,64	20	795	352,8
162 ⊢ 168	165	8	14	26,67	46,67	1320	46,08
168 ⊢ 174	171	13	27	43,33	90	2223	168,48
174 ⊢ 180	177	3	30	10	100	531	276,48
		$\sum = 30$		$\sum = 100$		$\sum = 5022$	$S_x = 1051,2$

$\bar{X} = 5022 / 30 = 167,4$
Md = clase $168 \vdash 174$
Mod = clase $168 \vdash 174$

$S_x^2 = 1051,2 / 29 = 36,25$
$S_x = \sqrt{36,25} = 6,02$



III.)

Classe	x_i	f_i	F_i	f_r (%)	F_r (%)	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
500 ⊢ 700	600	8	8	18,18	18,18	1800	764293,02
700 ⊢ 900	800	20	28	45,45	63,63	16000	238012,56
900 ⊢ 1100	1000	7	35	15,91	79,54	7000	57852,40
1100 ⊢ 1300	1200	5	40	11,35	90,9	6000	423143,14
1300 ⊢ 1500	1400	2	42	4,55	95,45	2800	418985,26
1500 ⊢ 1700	1600	1	43	2,27	97,72	1600	417356,63
1700 ⊢ 1900	1800	1	44	2,28	100	1800	793720,63
		$\Sigma = 44$		$\Sigma = 100$		$\Sigma = 40000$	$\Sigma = 3236363,64$

$\bar{x} = 40000 / 44 = 909,09$

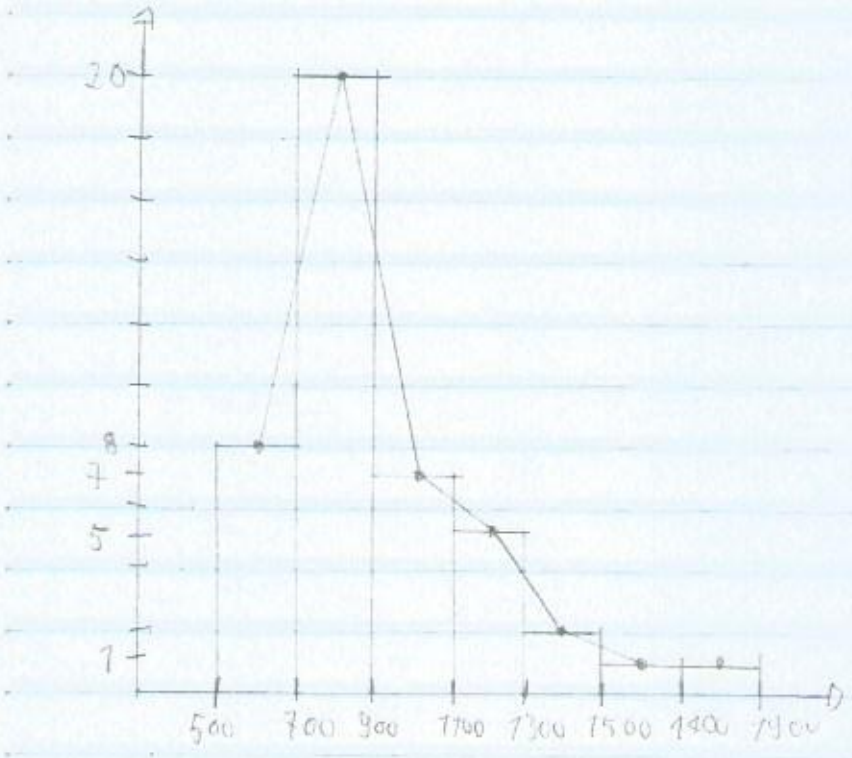
Md = classe $700 \vdash 900$

$Moda$ = classe $700 \vdash 900$

$S_x^2 = 3236363,64 / 13$

$S_x^2 = 457641,27$

$S_x = 244,34$



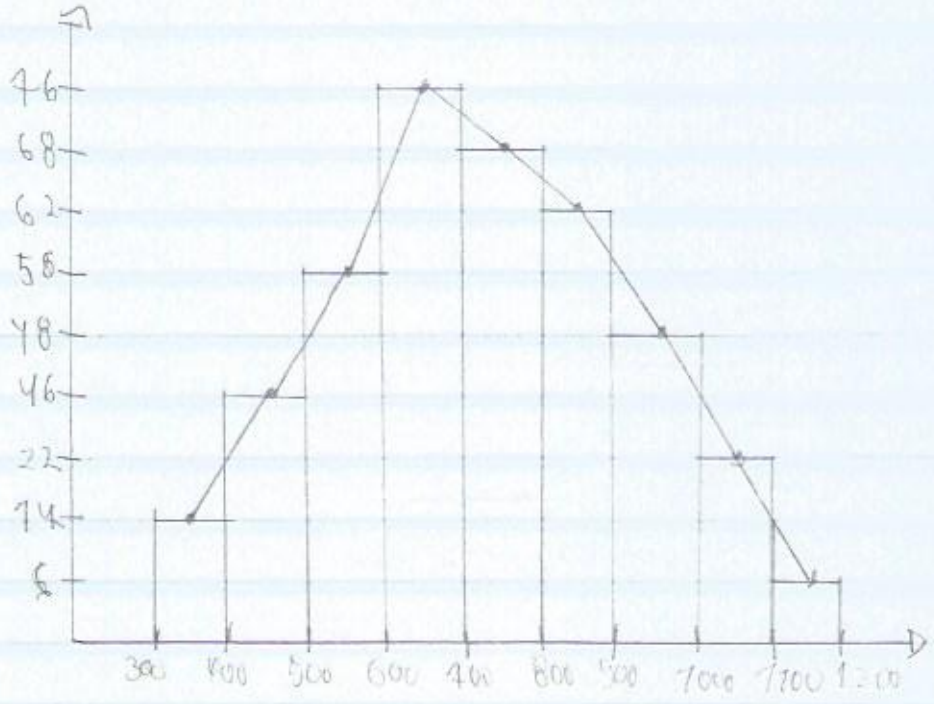
2)

áreas	x_i	f_i	F_i	f_r (%)	F_r (%)	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
300 ⊢ 400	350	14	14	3,5	3,5	4900	
400 ⊢ 500	450	46	60	11,5	15	20700	
500 ⊢ 600	550	58	118	14,5	29,5	31900	
600 ⊢ 700	650	76	194	19	48,5	49400	
700 ⊢ 800	750	68	262	17	65,5	51000	
800 ⊢ 900	850	62	324	15,5	81	52700	
900 ⊢ 1000	950	48	372	12	93	45600	
1000 ⊢ 1100	1050	22	394	5,5	98,5	23100	
1100 ⊢ 1200	1150	6	400	1,5	100	6900	
		$\delta = 400$		$\delta = 100$		$\delta = 286200$	

$\bar{x} = 286200/400 = 715,5$

md = classe 700 ⊢ 800

moda = classe 600 ⊢ 700



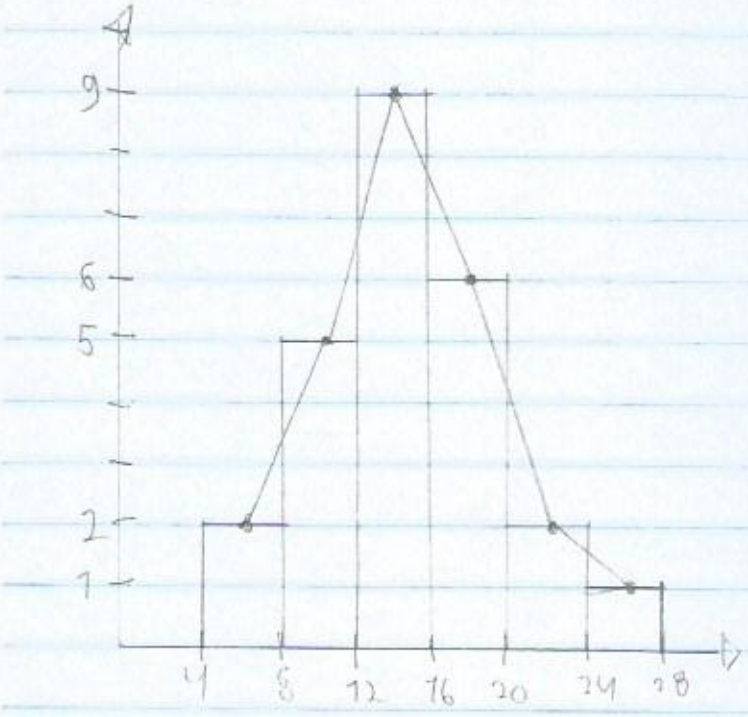
3)

classes	x_i	f_i	F_i	f_i (%)	F_i (%)	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
4 ⊢ 8	6	2	2	8	8	12	149,30
8 ⊢ 12	10	5	7	20	28	50	107,65
12 ⊢ 16	14	9	16	36	64	126	3,69
16 ⊢ 20	18	6	22	24	88	108	67,74
20 ⊢ 24	22	2	24	8	96	44	108,34
24 ⊢ 28	26	1	25	4	100	26	129,05
		$\sum = 25$		$\sum = 100$		$\sum = 366$	$\sum = 565,77$

$\bar{x} = 366/25 = 14,64$ | $S^2 = 565,77/24 = 23,57$

md = classe $12 \vdash 16$ | $S_x = 4,86$

$moda$ = classe $12 \vdash 16$

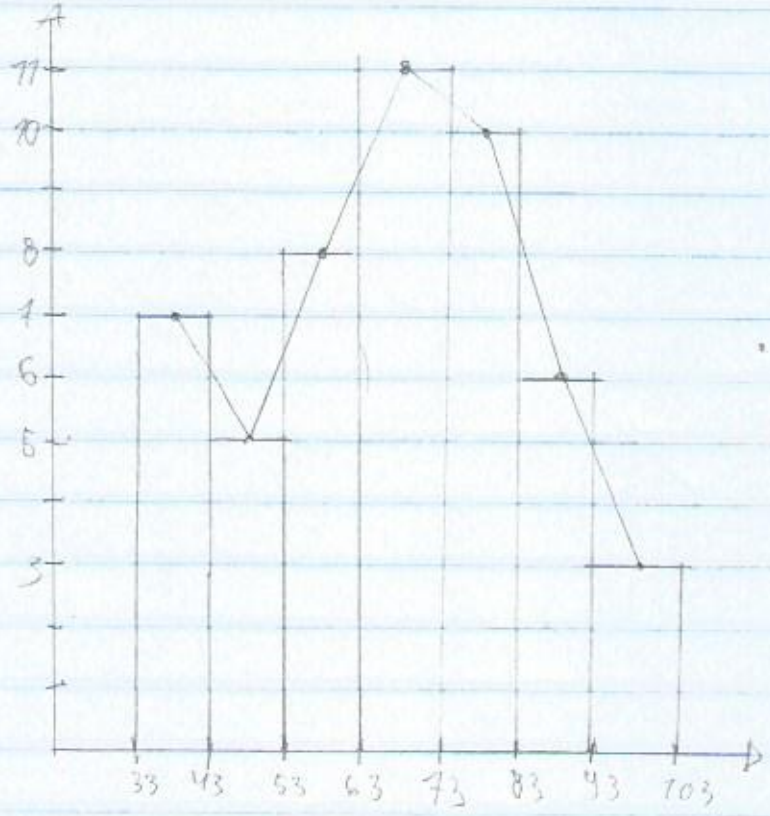


4) a) 100 ⊢ 110, clase modal
b) 40 a 150 = 110
c) 139
d) 74
e) 80 ⊢ 90 y 90 ⊢ 100, 40 ⊢ 50 y 140 ⊢ 150
f) 50 ⊢ 60 y 120 ⊢ 130
g) 48
h) 54

6) $k = 1 + 3{,}33 \cdot \log 50$ / $A_T = 98 - 33 = 65$
$K = 6{,}65$ / $ac = 65 / 6{,}65 = 9{,}77$

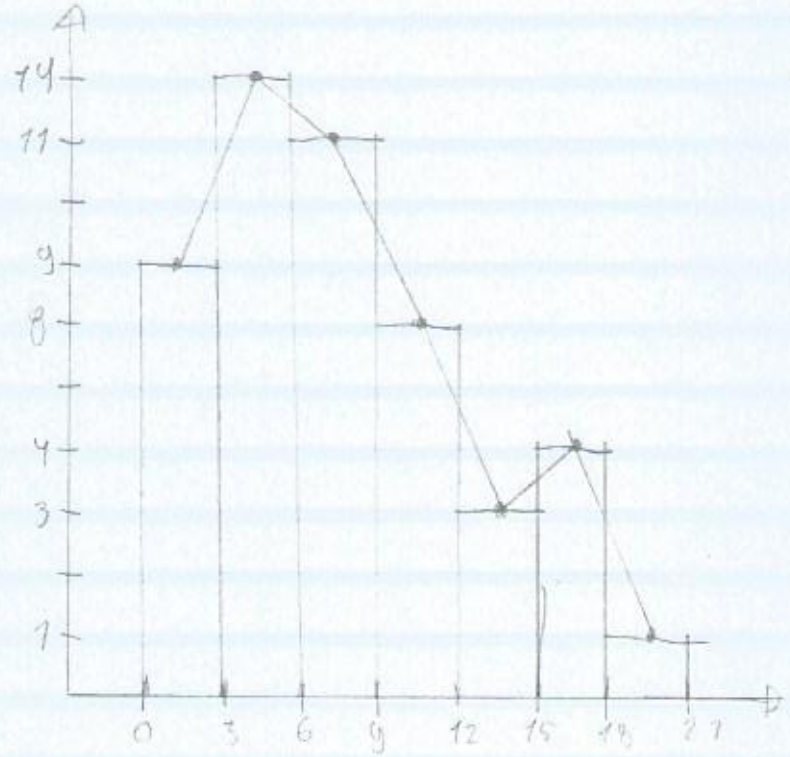
Salarios	x_i	f_i	F_i	f_r (%)	F_r (%)	$x_i \cdot f_i$	$(x_i - \bar{x})^2 \cdot f_i$
33 ⊢ 43	38	7	7	14	14	266	5615,92
43 ⊢ 53	48	5	12	10	24	240	1692,8
53 ⊢ 63	58	8	20	16	40	464	564,48
63 ⊢ 73	68	11	31	22	62	748	28,16
73 ⊢ 83	78	10	41	20	82	780	1345,6
83 ⊢ 93	88	6	47	12	94	528	2499,36
93 ⊢ 103	98	3	50	6	100	294	2995,68
		$\sum = 50$		$\sum = 100$		$\sum = 3320$	$\sum = 15042$

$\bar{x} = 3320 / 50 = 66{,}4$ / $S_x^2 = 15042 / 49 = 307{,}59$
$md = 63 \vdash 73$ / $S_x = 17{,}54$
$moda = 63 \vdash 73$



7)

classe	x_i	f_i	F_i	f_r	F_r (%)
0 ⊢ 3	1,5	4	9	18	18
3 ⊢ 6	4,5	14	23	28	46
6 ⊢ 9	7,5	11	34	22	68
9 ⊢ 12	10,5	8	42	16	84
12 ⊢ 15	13,5	3	45	6	90
15 ⊢ 18	16,5	4	49	8	98
18 ⊢ 21	19,5	1	50	2	100
		$\Sigma = 50$		$\Sigma = 100$	



8)

Velud	x_i	f_i	F_i
0 ⊢ 0,5		320	
0,5 ⊢ 1,5		135	
1,5 ⊢ 2,5		75	
2,5 ⊢ 3,5		65	
3,5 ⊢ 4,5		45	
4,5 ⊢ 5,5		55	
5,5 ⊢ 6,5		55	
6,5 ⊢ 7,5		65	
7,5 ⊢ 8,5		90	
8,5 ⊢ 9,5		145	
9,5 ⊢ 10		676