MATEMATICA FINANCIERA

T.Práctico Nº 9 - FRANCES

EJERCICIO Nº 1:

Vo = 80000
i = 0,18
i/m = 0,015
n = 5

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$80.000,00 = \frac{\alpha * (1-(1+0,18/12)^{-5}}{0,18/12}$$

α = 16.727,15

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					80.000,00
1	16.727,15	1.200,00	15.527,15	15.527,15	64.472,85
2	16.727,15	967,09	15.760,05	31.287,20	48.712,80
3	16.727,15	730,69	15.996,45	47.283,65	32.716,35
4	16.727,15	490,75	16.236,40	63.520,05	16.479,95
5	16.727,15	247,20	16.479,95	80.000,00	(0,00)

EJERCICIO Nº 2:

Vo = 100000
i = 0,0315
i/m = 0,0315
n = 12

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$100.000,00 = \frac{\alpha * (1-(1+0,0315)^{-12}}{0,0315}$$

α = 10.136,37

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					100.000,00
1	10.136,37	3.150,00	6.986,37	6.986,37	93.013,63
2	10.136,37	2.929,93	7.206,45	14.192,82	85.807,18
3	10.136,37	2.702,93	7.433,45	21.626,27	78.373,73
4	10.136,37	2.468,77	7.667,60	29.293,87	70.706,13
5	10.136,37	2.227,24	7.909,13	37.203,00	62.797,00
6	10.136,37	1.978,11	8.158,27	45.361,27	54.638,73
7	10.136,37	1.721,12	8.415,25	53.776,52	46.223,48
8	10.136,37	1.456,04	8.680,33	62.456,86	37.543,14
9	10.136,37	1.182,61	8.953,77	71.410,62	28.589,38
10	10.136,37	900,57	9.235,81	80.646,43	19.353,57
11	10.136,37	609,64	9.526,74	90.173,17	9.826,83
12	10.136,37	309,55	9.826,83	100.000,00	0,00

EJERCICIO Nº 3:

Vo = 250000
i = 0,25
n = 5

i/m = 0,04166666

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$250.000,00 = \frac{\alpha * (1-(1+0,25/6)^{-5}}{0,25/6}$$

α = 56.419,97

cuota	Ik	Ck	Ek	Rk
				250.000,00
56.419,97	10.416,67	46.003,30	46.003,30	203.996,70
56.419,97	8.499,86	47.920,11	93.923,41	156.076,59
56.419,97	6.503,19	49.916,78	143.840,19	106.159,81
56.419,97	4.423,33	51.996,64	195.836,83	54.163,17
56.419,97	2.256,80	54.163,17	250.000,00	0,00

EJERCICIO Nº 4:

α= 12500,00
i = 0,085
i = 0,01368952
n = 3

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$(1+0,085)^1 = (1+im)^6$

$$Vo = \frac{12.500 *(1-(1+0,01368952)^{-3}}{0,01368952}$$

Vo = 36.496,24

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					36.496,24
1	12.500,00	499,62	12.000,38	12.000,38	24.495,86
2	12.500,00	335,34	12.164,66	24.165,05	12.331,19
3	12.500,00	168,81	12.331,19	36.496,24	(0,00)

EJERCICIO Nº 5:

α= 5550,00
i = 0,0200
n = 6

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$Vo = \frac{5.550 * (1-(1+0,020)^{-6}}{0,020}$$

Vo = 31.087,94

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					31.087,94
1	5.550,00	621,76	4.928,24	4.928,24	26.159,70
2	5.550,00	523,19	5.026,81	9.955,05	21.132,89
3	5.550,00	422,66	5.127,34	15.082,39	16.005,55
4	5.550,00	320,11	5.229,89	20.312,28	10.775,66
5	5.550,00	215,51	5.334,49	25.646,76	5.441,18
6	5.550,00	108,82	5.441,18	31.087,94	0,00

EJERCICIO Nº 6:

Vo = 350000
i = 0,02
ig 0,0242 (0,02*1,21)
n = 8

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$350.000,00 = \frac{\alpha * (1-(1+0,0242)^{-8}}{0,0242}$$

α = 48.647,21

Nro cta	Cuota α	Interes I_k	Iva 0,21	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0						350.000,00
1	48.647,21	7.000,00	1.470,00	40.177,21	40.177,21	309.822,79
2	48.647,21	6.196,46	1.301,26	41.149,49	81.326,70	268.673,30
3	48.647,21	5.373,47	1.128,43	42.145,31	123.472,01	226.527,99
4	48.647,21	4.530,56	951,42	43.165,23	166.637,24	183.362,76
5	48.647,21	3.667,26	770,12	44.209,83	210.847,06	139.152,94
6	48.647,21	2.783,06	584,44	45.279,70	256.126,77	93.873,23
7	48.647,21	1.877,46	394,27	46.375,47	302.502,24	47.497,76
8	48.647,21	949,96	199,49	47.497,76	350.000,00	(0,00)

EJERCICIO Nº 7:

Vo = 210000
i = 0,02666667
ig 0,02946667 (0,32/12)*1,105)
n = 6

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$$210.000,00 = \frac{\alpha * (1-(1+0,02946667)^{-6}}{0,02946667}$$

α =	38.696,98

α =	39.462,48

Cuota Total

(38696.98+190,50+575)

Nro cta	Cuota α	Interes I_k	Iva 0,21	Gastos Mensuales	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0							210.000,00
1	39.462,48	5.600,00	588,00	765,50	32.508,98	32.508,98	177.491,02
2	39.462,48	4.733,09	496,97	765,50	33.466,91	65.975,89	144.024,11
3	39.462,48	3.840,64	403,27	765,50	34.453,07	100.428,95	109.571,05
4	39.462,48	2.921,89	306,80	765,50	35.468,28	135.897,24	74.102,76
5	39.462,48	1.976,07	207,49	765,50	36.513,42	172.410,65	37.589,35
6	39.462,48	1.002,38	105,25	765,50	37.589,35	210.000,00	0,00

EJERCICIO Nº 8:

Vo = 30000
i = 0,30000000
i/m = 0,07500000 (0,30/4)
n = 5

$$Vo = \frac{\alpha * (1-(1+i)^{-n}}{n}$$

$ 30.000,00 $\quad \frac{\alpha * (1-(1+0,075)^{-5}}{0,07500000}$

a)

α =	7.414,94

b)

$Ck = \alpha\ (1+ i)^{-(n-k+1)}$ $\quad Ck = 7,414,94 * (1+0,075)^{-(5-1+1)}$

Ck=	5.164,94

Amortización Real 1º Trimestre

c)

$Ik = \alpha * 1 - (1/(1+i))^{n-k+1}$

Ik=	1.446,21

$Ck = 7414,94 * (1 - (1/(1 + 0,075)^{5-3+1}$ **Intereses 3º Trimestre**

d)

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					30.000,00
1	**7.414,94**	2.250,00	**5.164,94**	5.164,94	24.835,06
2	7.414,94	1.862,63	5.552,31	10.717,25	19.282,75
3	7.414,94	**1.446,21**	5.968,74	16.685,99	13.314,01
4	7.414,94	998,55	6.416,39	23.102,38	6.897,62
5	7.414,94	517,32	6.897,62	30.000,00	0,00

EJERCICIO Nº 9:

α= 15000,00
i = 0,250
i = 0,01876927 $\quad (1+0,25)^1 = (1+ i)^{12}$
n = 4

$$Vo = \frac{15000 * (1-(1+0{,}01876927)^{-4}}{0{,}01876927}$$

a)

Vo =	**57.286,93**

b)

$Ik = \alpha * 1 - (1/(1+i))^{n-k+1}$

$Ik = 15.000\ (1 - (1/(1 + 0{,}01876927)^{4-2+1}$

Ik=	**813,88**

Intereses 2º Pago

c)

$Ek = V((1 + i)^{k} - 1)/(1 + i)^{n} - 1$

$(57286{,}93(1+0{,}01876927)^{3} - 1)/(1+0{,}01876927)^{4} - 1)$

Ek =	**42.563,28**

Total Amortizado 3º Pago

d)

$Rk = \alpha \frac{1 - (1+i)^{-(n-k)}}{I}$

$Rk = 15000\ (\ 1 - (1+0{,}01876927)^{-(4-2)}\ )/0{,}01876927$

Rk=	**29.176,04**

Saldo de Deuda 2º Pago

e)

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					**57.286,93**
1	15.000,00	1.075,23	13.924,77	13.924,77	43.362,16
2	15.000,00	**813,88**	14.186,12	28.110,89	**29.176,04**
3	15.000,00	547,61	14.452,39	**42.563,28**	14.723,65
4	15.000,00	276,35	14.723,65	57.286,93	0,00

EJERCICIO Nº 10:

Prestamo = 12.000 + 12.000/(1 + 0,15/12)^{1} 23.851,85

Vo = 23851,85
i = 0,150
i = 0,01250000
n = 4

$\$\ 23.851{,}85 \quad \frac{\alpha * (1-(1+0{,}0125)^{-4}}{0{,}01250000}$

a)

α =	**6.150,46**

Nro cta	Cuota α	Interes I_k	Amortiz. C_k	Am.Acum. E_k	Resto R_k
0					**23.851,85**
1	6.150,46	298,15	5.852,31	5.852,31	17.999,54
2	6.150,46	224,99	5.925,47	11.777,78	12.074,07
3	6.150,46	150,93	5.999,54	17.777,32	6.074,53
4	6.150,46	75,93	6.074,53	23.851,85	0,00