

Lista 2 - Fundamentos

①

10% a.p

$P_1 = 300$

$P_2 = 400$

$P_3 = 500$

$P_4 = 400$

$P_5 = 300$

$$P = \frac{F}{(1+i)^n}$$

$$X = \frac{300}{(1+0,1)^1} + \frac{400}{(1+0,1)^2} + \frac{500}{(1+0,1)^3} + \frac{400}{(1+0,1)^4} + \frac{300}{(1+0,1)^5}$$

$$X = 272,73 + 330,58 + 375,66 + 243,21 + 186,28$$

$$| X = 1438,46 |$$

②

Empréstimo: R\$10.000

T: 2 anos \rightarrow 24 meses

J: 7% a.a. \rightarrow cap mensal: $(1+0,04)^2 = (1+i)^{24}$

$$| i = 0,00565 |$$

parcela: ?

$$A = \frac{F \cdot i}{(1+i)^n - 1}$$

$$F = P(1+i)^n$$

$$A = \frac{10000 (1+0,00565)^{24} \cdot 0,00565}{(1+0,00565)^{24} - 1}$$

$$| A = 446,73 |$$

③

R\$44.200

Janeiro

$\frac{1}{3}$ entrada

36 parcelas iguais

$i = 9\%$ a.a.

$$(1+0,09)^1 = (1+i)^{12}$$

$$\sqrt[12]{1,09} = 1+i$$

$$i = 0,055 \text{ a.m.}$$

$$F = P(1+i)^n$$

$$44200 = P(1+0,055)^{36}$$

$$P = 6.431,82 \text{ reais}$$

$$2 \text{ Trada} = 2143,94$$

4)

Olhar na tabela $\rightarrow (\frac{G}{P}, i\%, n)$
 $\rightarrow \frac{10000}{P}, 4\%, 5$

85 mil
45 mil
65 mil
55 mil
45 mil

$i = 4\%$

$n = 5$ anos

$up = ?$

$P = G \cdot Tab$

$P = 10000 \cdot 8,555$

$P = 85.550$

5)

Carro $\rightarrow R\$ 33000$

30 prestações $\rightarrow 30$ meses \rightarrow iguais

32% a.a. $\rightarrow (1+0,12)^{12} = (1+i)^{12}$
 $i = 0,009489$

$$A = \frac{F \cdot i}{(1+i)^n - 1}$$

$$A = \frac{P(1+i)^n \cdot i}{(1+i)^n - 1}$$

$$A = \frac{33000(1+0,0095)^{30} \cdot 0,0095}{(1+0,0095)^{30} - 1}$$

$$A = 1269,34$$

6)

$i = 6\%$ a.a

$n = 10$ anos

Valor $= R\$ 10.000 \rightarrow$ valor de up

$P = ?$

$$F = P(1+i)^n$$

$$\text{Valor total} = 10000 + 1403 = 11403$$

$$1: P = \frac{500}{(1+0,06)^1} = 471,70$$

$$2: P = \frac{300}{(1+0,06)^2} = 88,9996$$

$$3: P = \frac{125}{(1+0,06)^3} = 104,95$$

$$4: P = \frac{150}{1,06^4} = 118,81$$

$$5: P = \frac{145}{1,06^5} = 130,44$$

$$\text{Total} = 1403$$

$$6: P = \frac{200}{1,06^6} = 150,99$$

$$7: P = \frac{225}{1,06^7} = 149,64$$

$$8: P = \frac{250}{1,06^8} = 156,85$$

$$9: P = \frac{275}{1,06^9} = 162,77$$

$$10: P = \frac{300}{1,06^{10}} = 164,52$$

8)

$P = 150$

4% $\rightarrow i$ a.m

mínimo $\rightarrow \$ 10$

$R\$ 6 \rightarrow$ der

$$A = \frac{P(1+i)^n \cdot i}{(1+i)^n - 1}$$

$$10 = \frac{156 \cdot 0,04}{(1+0,04)^n - 1}$$

$$\frac{150 + 6}{10} = 15,6$$

9)

deposita $= 300$

$n = 10$ meses

$i = 0,5\%$ a.m

mês	Futuro
1	301,5
2	604,51
3	909,03
4	1213,08
5	1522,66
6	1831,77
7	2142,43
8	2454,64
9	2768,41
10	3083,78

$$F = P(1+i)^n$$

$$P = \text{mês anterior} + 300$$

Tabela 3

①

R\$ 200.000 → P

i → 12% a.a

n = 4 anos

Americano (a)

Parcela	Juros	ultrada
1	24000	200000
2	24000	200000
3	24000	200000
4	24000	200000

última parcela +

$$J = S_{x-1} \cdot i$$

$$S_x = S_{x-1} - a$$

$$A = \frac{200000(1+0,12)^4 \cdot 0,12}{(1+0,12)^4 - 1}$$

$$A = 63846,89$$

n	F	pag	a	saldo
0	0	0	0	200000
1	24000	63846,88		
2		63846,88		
3		63846,88		
4		63846,88		

SAC

n	Juros	parcela	amort	saldo
0	0	J+a	0	200000
1	24000	74000	50000	150000
2	18000	68000	50000	100000
3	12000	62000	50000	50000
4	6000	56000	50000	0

$$a = \frac{200000}{n=4}$$

$$a = 50000$$

Americano

$$J_x = S_{x-1} \cdot i$$

$$J_x = 200000 \cdot 0,12$$

$$J_x = 24000 + 200000$$

último

$$P = \frac{A(1+i)^n - 1}{(1+i)^n \cdot i}$$

$$A = \frac{P(1+i)^n \cdot i}{(1+i)^n - 1}$$

② amortização constante → SAC

carência 1 ano → sem J.

n	juros	amort	a.m. ou	pag	saldo
0	0	0	0	0	200000
1	24000	0	0	0	224000
2	26,888	74666,67	74666,67	101546,67	149333,33
3	14.919,99	74666,67	149333,33	92.586,66	74666,66
4	6.959,99	74666,67	224000	83626,67	0

$$J = S_{x-1} \cdot i$$

$$a = \frac{P}{n}$$

② Taxa mínima = 10% a.a

Valor presente líquido = payback

bPL:	parcela	1	2
	0	-70000	-50000
	1	-62000	-50800
	2	-58000	
	3	-52000	
	4	-46000	
	5	-40000	
	6		