

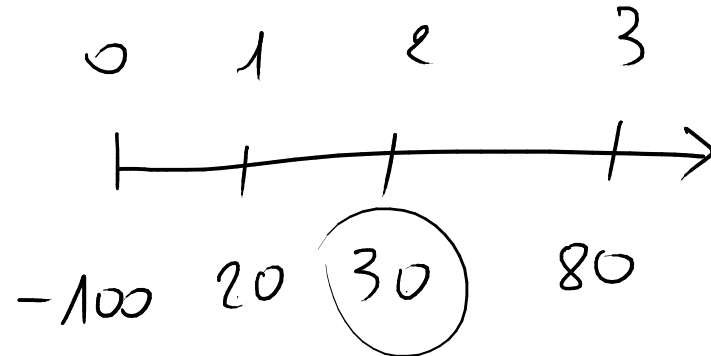
CRITERI DI SCELTA TRA INVESTIMENTI

1) OPERAZIONE FINANZIARIA

2) SALDO CONTABILE

3) CRITERI DI SCELTA - T.D.R. ✓
- R.E.A. ✓
- T.I.R. ✓

SALDO CONTABILE :



$$S(t) = \sum_{h \leq t} C_h$$

$$S(2) = -80 + 30 = \underline{-50}$$

$$S(3) = -50 + 80 = \underline{+30}$$

$$S(0) = \underline{-100}$$

$$S(1) = -100 + 20 = \underline{-80}$$

SE SALDO CONTABILE CAMBIA SEGNO

1 SOLA VOLTA

→ ⊖ → ⊕ INVESTIMENTO

→ ⊕ → ⊖ FINANZIAMENTO

ALTRIMENTI PROGETTO LISO

ALTERNATIVE : \rightarrow COMPLETE

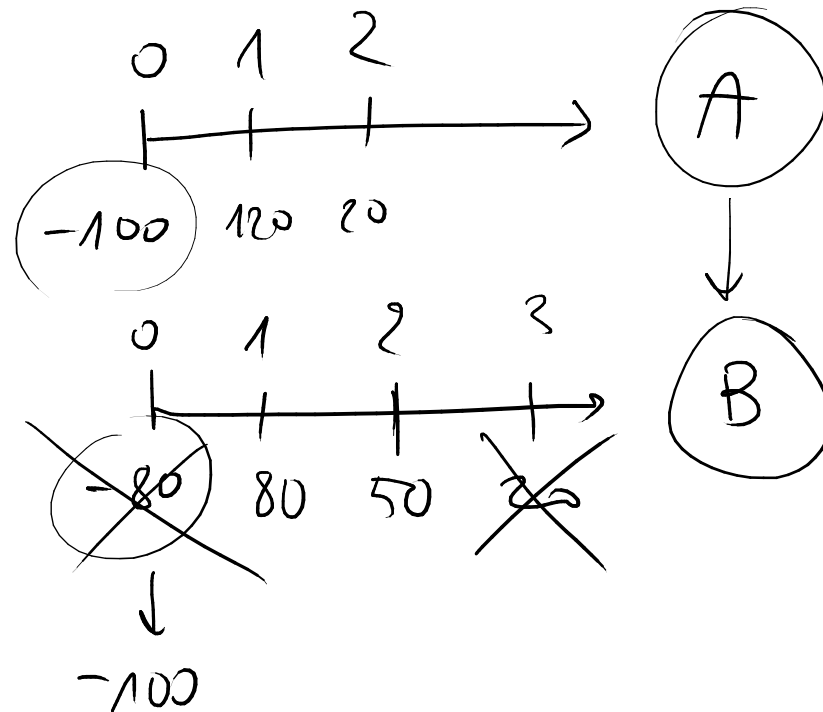
• SPESSE INVESTIMENTO INIZIALE

• STESSA DURATA

• AMMISSIBILI

• INDIPENDENTI

• ALTERNATIVE



TEMPO DI RECUPERO:
(CRITERIO PAYBACK)

TEMPO NECESSARIO affinché i RICAVI
EGUAGLINO O SUPERINO i COSTI

SCELGO TEMPO DI RECUPERO MINORE \times INVESTITI.

$$t_p = \left\{ \min_k t_k : C_0 - \sum_k S_k \leq 0, k=0, 1, \dots, m \right\}$$

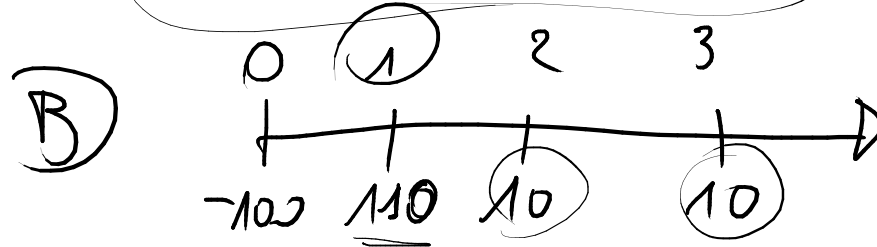
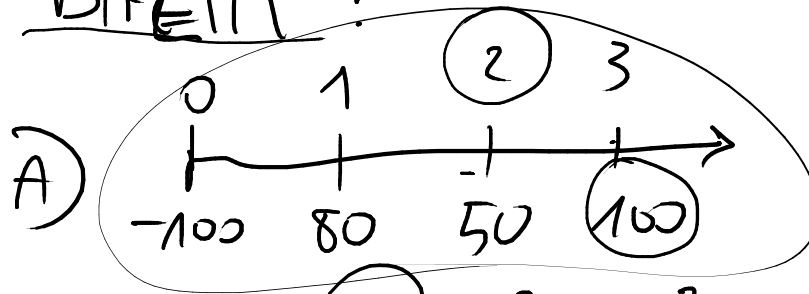
$\{REGI =$

- INDICATORE TEMPORALE non reddituale
prezzo di LIQUIDITÀ del PROGETTO

- SEMPLICE



DIFETTI :

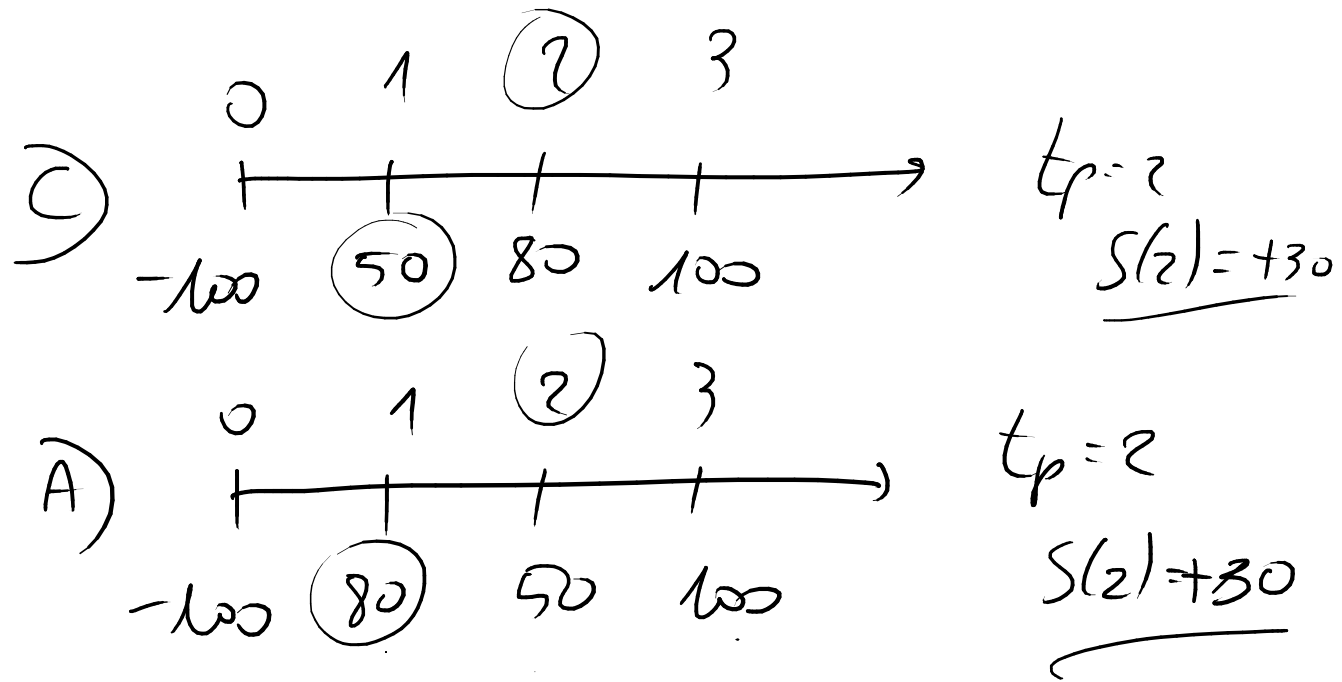


CONSIDERA SOLO
RICAVI e COSTI
ENTRO t_p

$t_p = 2$

↓
TRASCURA
I SUCCESSI

$t_p = 1$



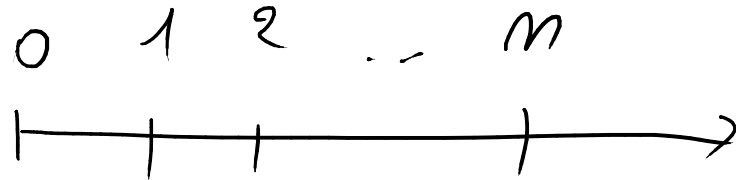
TRASCURA DI STRIBUZIONE TEMPORALE DEI
RICAVI entro il TEMPO DI RECUPERO

R.E.A. = RISULTATO ECONOMICO ATTUALIZZATO

VAN (valore attuale netto)

N.P.V. = net present value

D.C.F. = DISCOUNTED CASH FLOW



C_0 C_1 C_2 ... C_m

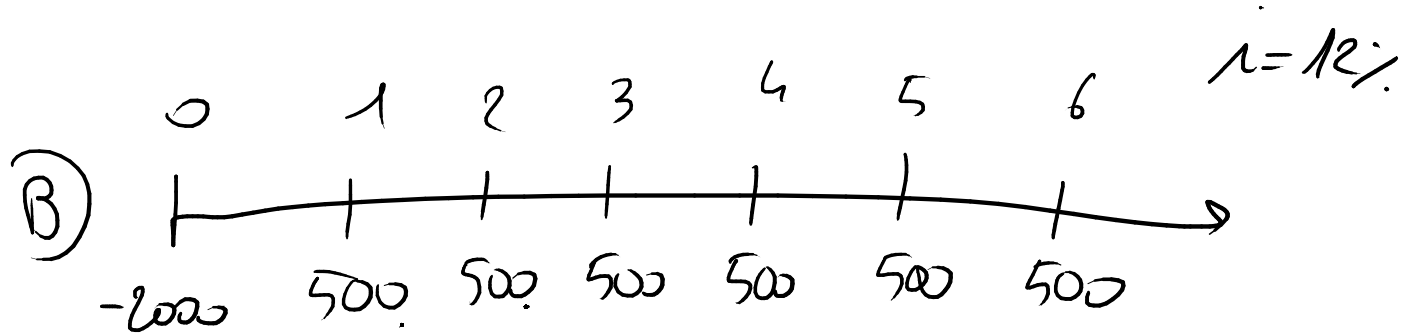
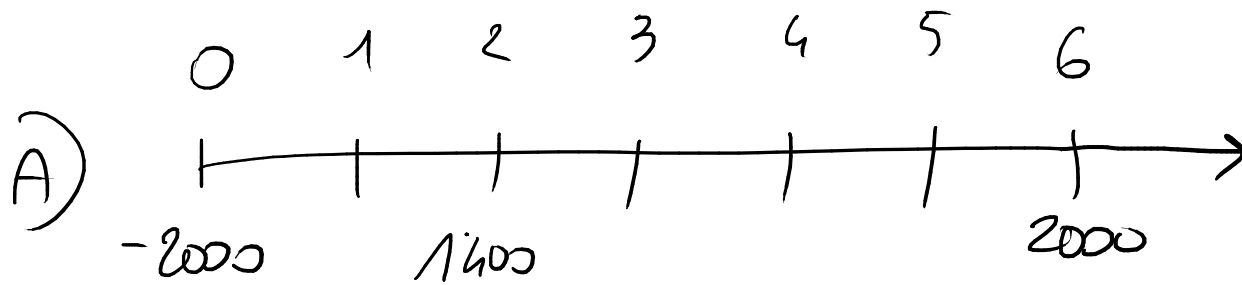
$$g(\underline{i}) = \sum_{k=0}^m C_k (1+i)^{-k}$$

REA è operatore lineare :

$$REA(A+B) = \underline{REA(A)} + \underline{REA(B)}$$

$$REA(k \cdot A) = k \cdot REA(A)$$

↑
 $k \in \mathbb{R}$

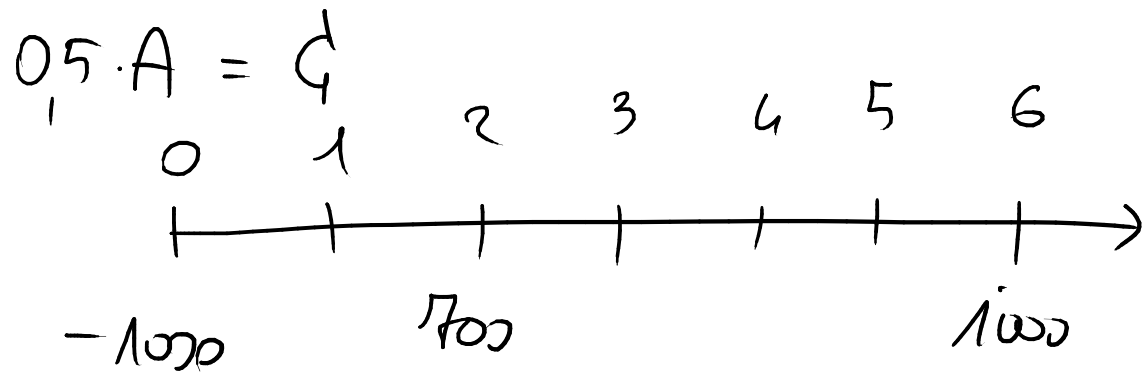


$$REA(A) = -2000 + 1400(1+0,12)^{-2} + 2000(1+0,12)^{-6}$$

$\hookrightarrow = 129,33$ sistema REA $\rightarrow A \sim B$ indifferente

$$REA(B) = -2000 + 500 \cdot a_{\overline{6}|0,12} = -2000 + 500 \frac{1 - (1+0,12)^{-6}}{0,12}$$

$\hookrightarrow = 55,70$ $REA(A) > REA(B) \rightarrow A \succ B$

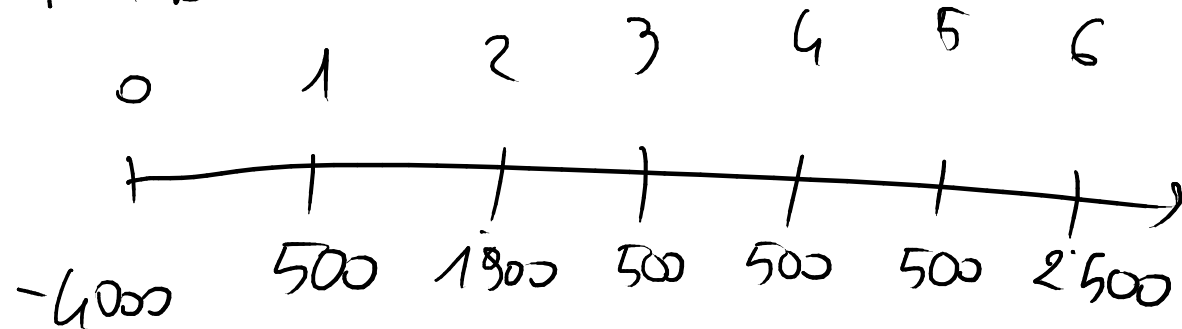


$$REA(G) = 129,33 \cdot 0,5 = 64,67$$

$$-1000 + \frac{700}{(1+0,12)^2} + \frac{1000}{(1+0,12)^6} = 64,67$$

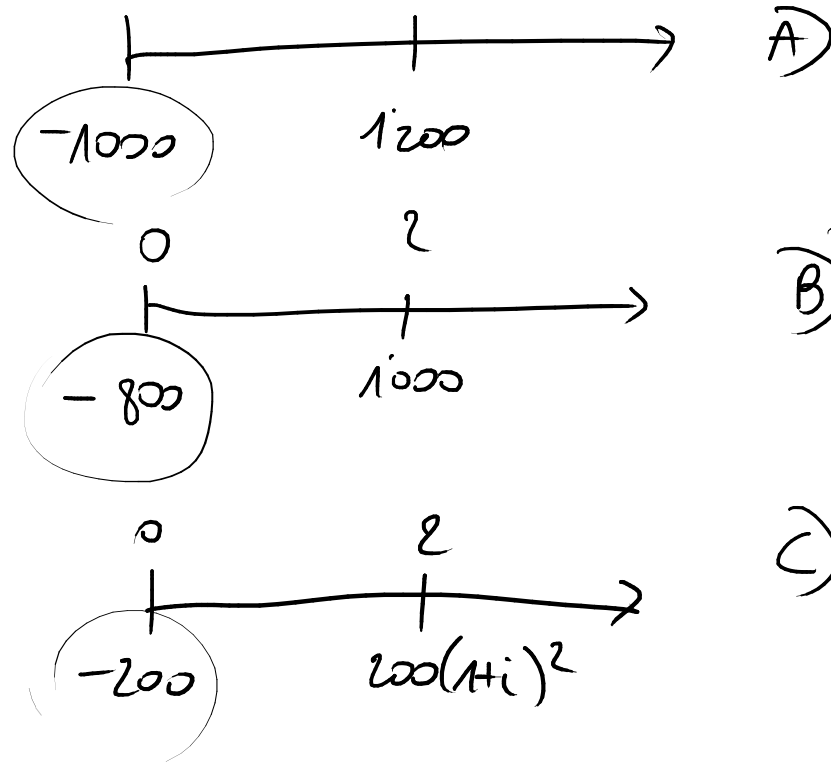
$$REA(G) = REA(0,5 \cdot A) = 0,5 \cdot REA(A)$$

$$A+B =$$



$$\begin{aligned} \text{REA}(A+B) &= -4000 + 500(1+0,12)^{-1} + 1900(1+0,12)^{-2} \\ &+ 500(1+0,12)^{-3} + 500(1+0,12)^{-4} + 500(1+0,12)^{-5} + \\ &2500(1+0,12)^{-6} = \text{REA}(A) + \text{REA}(B) = \\ &= 129,33 + 55,70 = 185,03 \end{aligned}$$

PREGI REA è operatore lineare consente confronto



Ande
TRA
investir.

B)]
con
esborso
iniziale
≠

Difetti : DIPENDE DALLA SCELTA TASSO INTERESSE

T.I.R. TASSO INTERNO DI RENDIMENTO

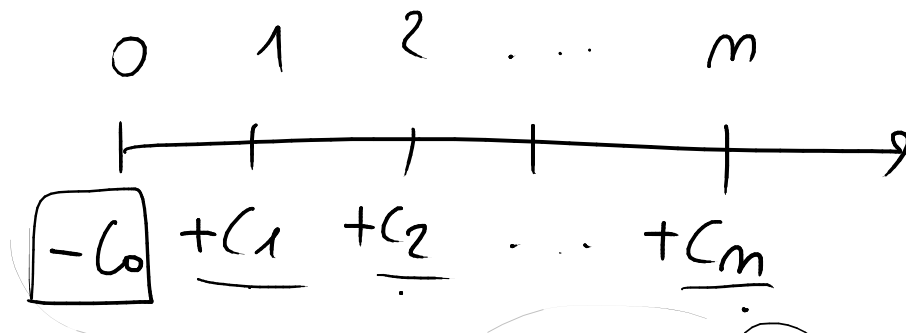
I.R.R. = internal rate of return

è il tasso che rende $REA(i^*) = 0$

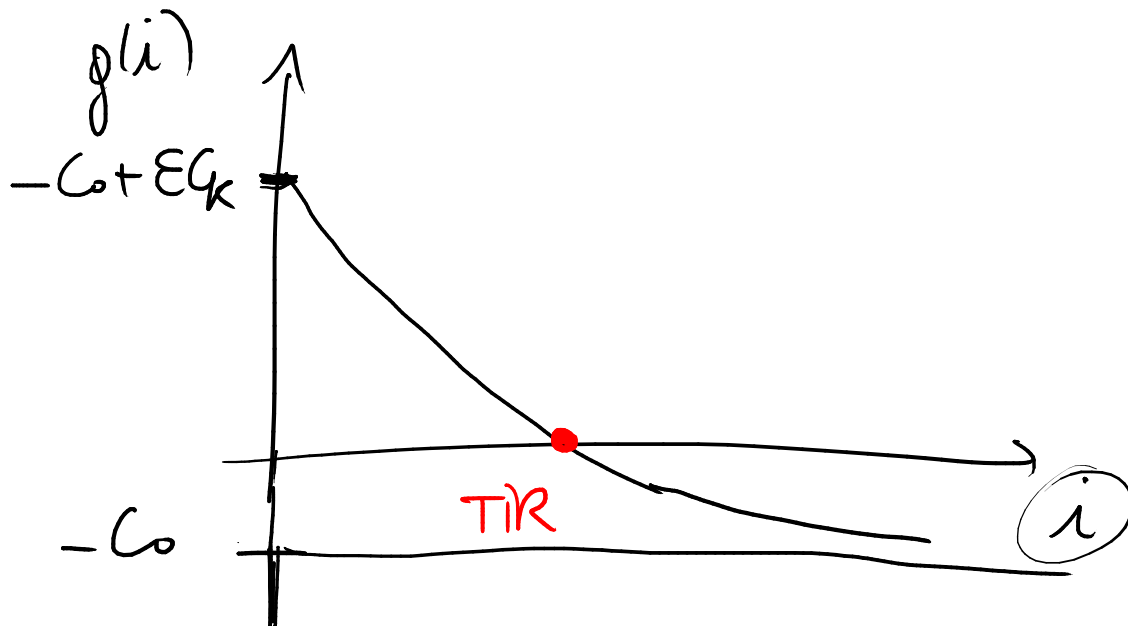
$$g(i) = \sum_{k=0}^m C_k (1+i)^{-k} = 0$$

preferisco TIR maggiore se investimento

preferisco TIR minore se finanziamento

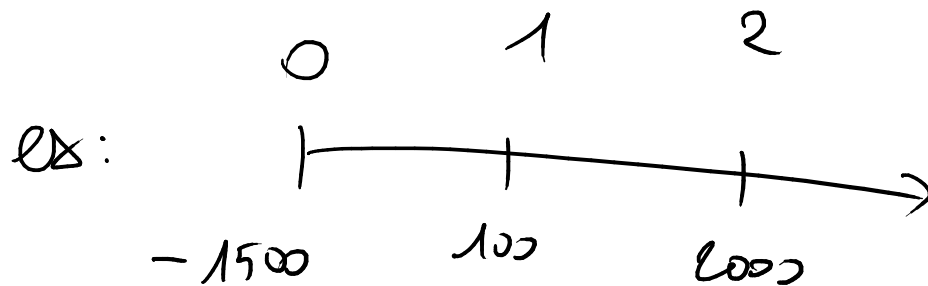


$$g(i) = -C_0 + \sum_{k=1}^m C_k (1+i)^{-k} \quad -C_0 + \sum C_k > 0$$



TIR \exists ?

TIR \exists e è unico



$$REA = -1500 + \frac{100}{(1+i)^1} + \frac{2000}{(1+i)^2} = 0$$

$$REA = -1500 + 100t + 2000t^2 = 0$$

$$t_{1,2} = \frac{-1 \pm \sqrt{1 - 4(20)(-15)}}{40} = \frac{-1 \pm \sqrt{1201}}{40}$$

$$t = \frac{1}{1+i}$$

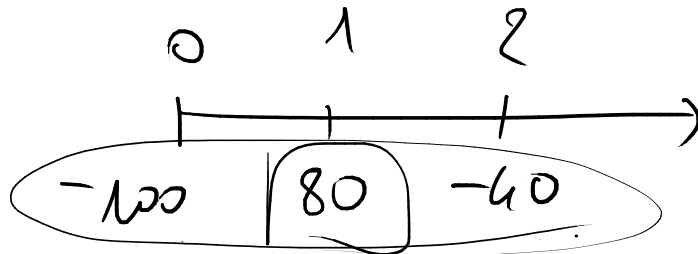
$$t_1 = 0,86$$

$t_2 < 0$ не имеет значения.

$$\frac{1}{1+i} = 0,86 \rightarrow i = \frac{1}{0,86} - 1 = 0,19$$

$$TIR = 0,19$$

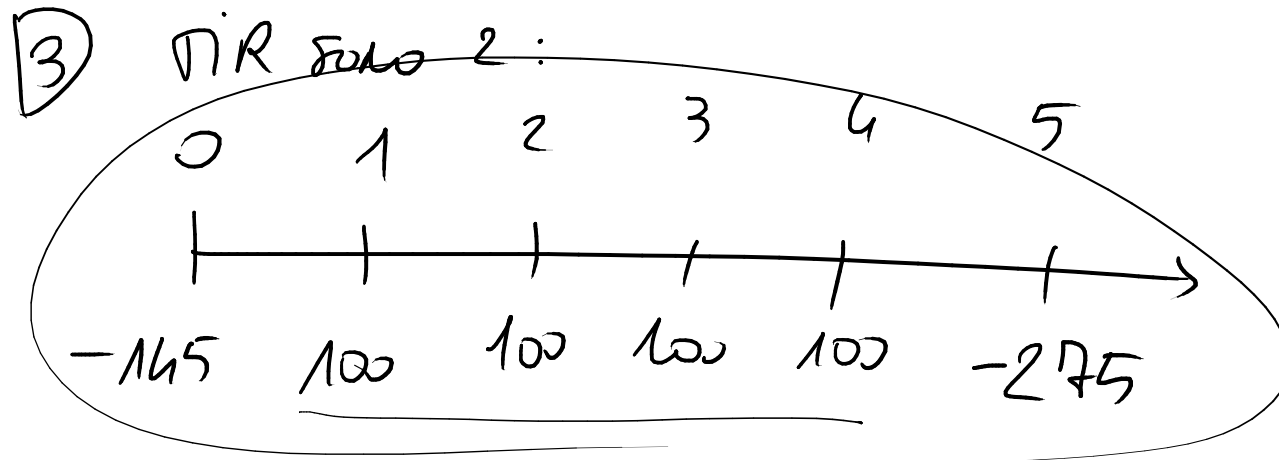
2)



$$-100 + \frac{80}{1+i} - \frac{40}{(1+i)^2} = 0$$

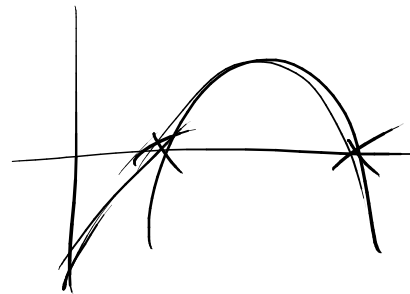
$$t_{1,2} = \frac{-4 \pm \sqrt{4^2 - 40}}{2}$$

Δ не имеет значения
 \rightarrow no solution



$$\lambda = 8,78\%$$

$$\lambda = 26,75\%$$



$X \exists$ e UNICITÀ TIR ABBIAMO 2 TEOREMI:

CONDIZIONI SUFFICIENTI

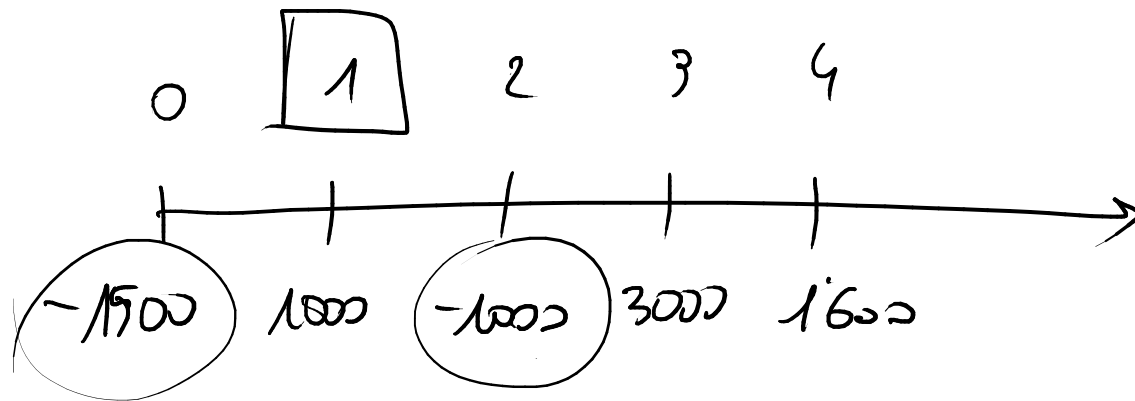
TEOREMA DI LEVI =

DATA UNA OPERAZIONE FINANZIARIA

TALE CHE $\sum_{k=1}^m E_k$ ENTRATE $>$ $\sum_{k=1}^m U_k$ USCITE

Condizione sufficiente \exists UNICITÀ TIR θ che

SMA (USCITE) $<$ SCADENZA delle 1^a ENTRATA



$$-2500 < 1000 + 3000 + 1600$$

$$SRA(\text{uscite}) = 0 \cdot \frac{1500}{2500} + 2 \cdot \frac{1000}{2500} =$$

0,8

< 1 = scadenza 1^a entrata

QUINDI $r < 1$ UNICO secondo Teorema LEVI