

177 Used Notes

1. Is soil exhaustible? "Omelette School" says so.

$$R_{\text{rent}} = \text{usufruct}$$

$$R_{\text{rent}} = \text{cash flow} - \text{deprn.} \quad (L + \text{apprecn.})$$

2. Soil deprn. not deductible.

3. 4 ~~soil~~ soil categories.

a. Matrix. High pure flow. Indestructible.
Subject to external influences.

b. Conservable flow.

Is ec. to take pains to conserve. Lasts forever.

c. Revolving fund

d. Expendable surplus.

Ec. 177 Wed, Oct. 4

1. Basic: Hold a unit of ore so long as
unplaced value rises faster than i.r.
2. Use mines over time; recover K

$$PVR = \frac{A}{L} \frac{1 - 1.08^{-L}}{.08K}$$

A may actually rise w. shorter life
bcs. more wells give better access.

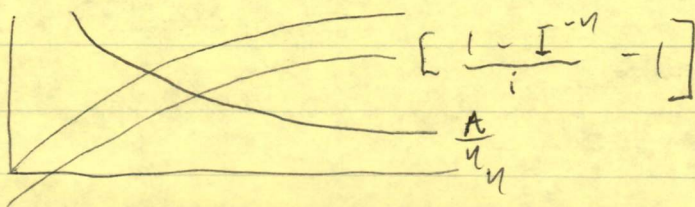
A may fall bcs. slower recovery
lets pressure sweep matrix cleaner

PVC $\equiv$ K. Dissects. of longevity

- a. Smaller wells, dissects. of scale
- b. K wears out - workovers needed.
- c. Fewer wells means more xptn
underground.

Let $A = K$

$$\text{Max PV} = \max_n \left[\frac{1}{n} \left[\frac{A}{i} \frac{1 - i^{-n}}{i} - A \right] \right] = \frac{A}{n} \left[\frac{1 - i^{-n}}{i} - 1 \right]$$



Ec. 177 Mon. Oct, 2 '89

$$\begin{aligned}\frac{d}{dn} I^{-n} &= \ln I^{-1} I^{-n} \\ &= -\ln I \cdot I^{-n} \\ &\approx -i I^{-n}\end{aligned}$$

1. Review.

$$\frac{d}{dn} (1+i)^n = \ln(1+i) \times (1+i)^n$$

$$\frac{d}{dn} \frac{1 - I^{-n}}{i} = \frac{1}{i} [0 - -i I^{-n}] = I^{-n}$$

2. Graphic (Toothpaste tube)

$$3. \quad \frac{\frac{I^{-n}}{1 - I^{-n}}}{i} = \frac{i}{I^n - 1}$$

Sensitivity to i, r.

$$\begin{aligned}n &= \frac{50}{\cancel{49}} = \cancel{7 \times 7} \\ i &= \cancel{.10}, 072 \\ I^n &= 32\end{aligned}$$

$$\begin{aligned}\text{If } i &= .036 \\ I^n &\approx 5.5\end{aligned}$$

$$4. \quad PV \text{ of mine.} = -\frac{K}{n} + \frac{a}{n} \frac{1 - I^{-n}}{i} \quad p. 349$$