

Ex 5.2

Q2) 8% per month = 0.08 TV €1400 15 months

$$F = 1400(1-0.08)^{15}$$
$$= €1400 \cdot 0.82$$

Q4) €140,000 Machine €25000 in Bank 3.5% = 0.035  
↳ 20% = 0.2

(a) (i) 4 yrs  $F = 140,000(1-0.2)^4$

$$= 57344$$

(ii)  $F = P(1+i)^t$

$$= 25000(1.035)^4$$
$$= 28688.08$$

(b) Inflation = 2% = 0.02

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

$$= 140,000(1.02)^4$$

(ii) 151540.50

(ii)  $151540.50 - (28688.08 + 57344)$

(v)  $FF = 0.651508 \cdot 42$

$= €20000.81$

(iv) reducing balance as machine would cost

Q6 60000 kg Milk. end Jan 2006

15% per month = 0.15

Beg April 2005  $\Rightarrow$  14 months

$$\begin{aligned} F &= P(1-i)^t \\ &= 60000(1-0.15)^{14} \\ &= 6166.18 \text{ kg.} \end{aligned}$$

Q7 Tractor = €180000 Trade in = €80000  
10 yrs.

$$(i) \quad 80,000 = 180,000(1-i)^{10} \quad (ii)$$

$$1 - \sqrt[10]{\frac{80,000}{180,000}} = i$$

$$0.077892 = i$$

$$\Rightarrow \text{Rate } = 7.79\%$$

$$(ii) \quad 60000 < 180000(1-0.0779)^t$$

$$\frac{60000}{180000} < 0.9221^t$$

$$\log \frac{1}{3} < t \log 0.9221$$

$$\frac{\log \frac{1}{3}}{\log 0.9221} < t$$

$$13.546 \text{ yrs} < t$$

$$t > 13.55 \text{ yrs.}$$

Q10

Cost €8000

(i)  $P = 8000$   $t = 20$   $F = 1$

$$F = P(1-i)^t$$

$$1 = 8000(1-i)^{20}$$

$$1 - \left(\frac{1}{8000}\right)^{\frac{1}{20}} = i$$
$$0.36196 = i$$

→ rate = 36.2%

(ii)  $F = P(1-i)^t$

as long as  $i \neq 100\%$  there will always be a value.

(iii) Slope:  $(5, 0) - (0, 8000) = \frac{8000}{-5} = 1600$ .

⇒ reducing by €1600 per yr.

(iv)  $H = 2$  yrs and €1300

(v) 5 yrs  $F = 8000(1-0.362)^5$   
 $= €845.66$

(iv) reducing balance as machine would still have a value after 5 yrs