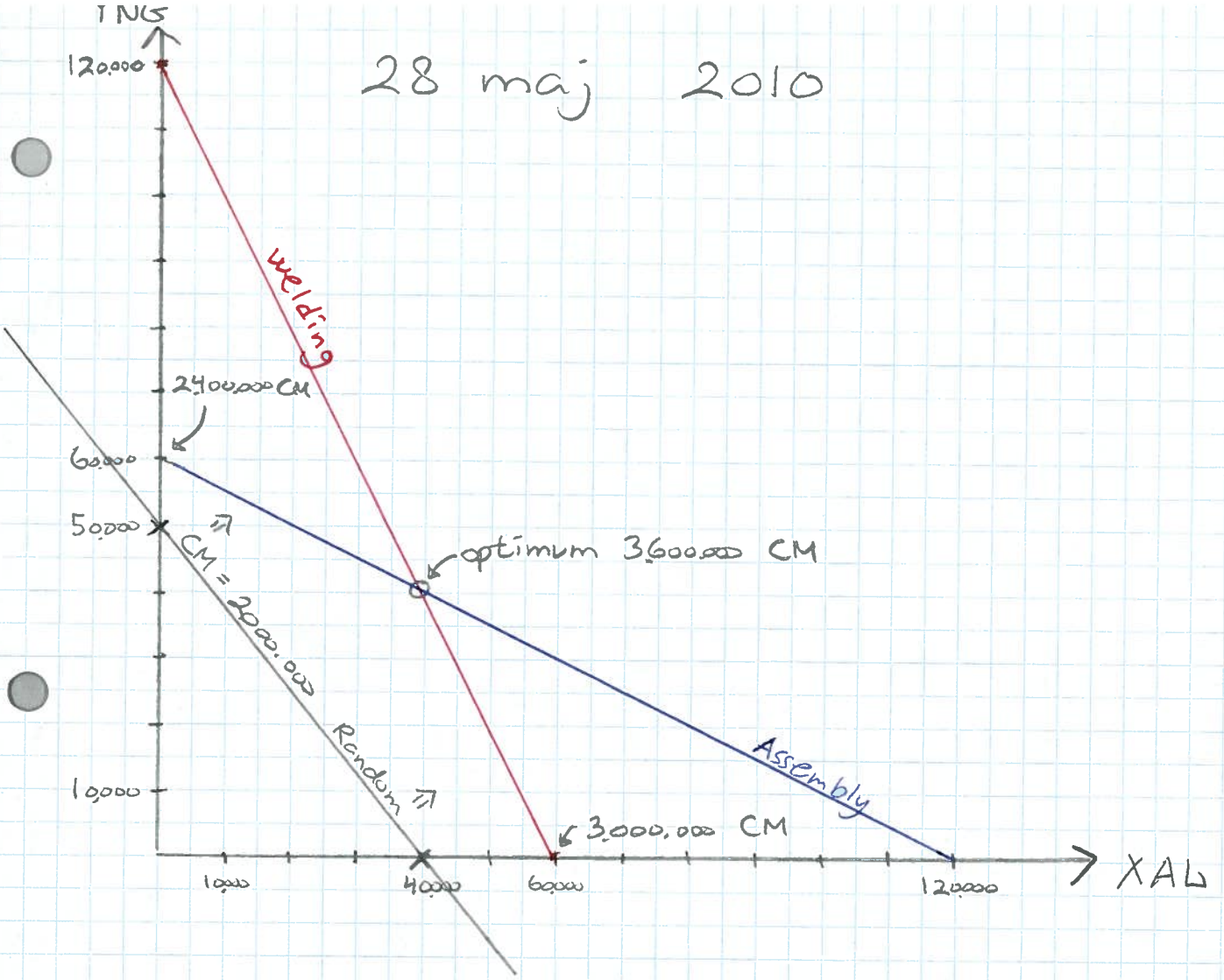
28 maj 2010



Welding = Assembly

$-2x + 120.000 = -\frac{1}{2}x + 60000$

$60.000 = 1\frac{1}{2}x$

$40.000 = x$

$Y = -2 \times 40.000 + 120.000$

$Y = 40.000$

$CM = (40.000 \times 40) + (40.000 \times 50)$

$CM = 3.600.000$

Assignment 1

	XAL	YNG	Capacity	MAX X	MAX Y	Slope, α	Function
Welding (svejsning)	10	5	600.000	$\frac{600000}{10} = 60.000$	$\frac{600000}{5} = 120.000$	$\frac{-120000}{60000} = -2$	$Y = -2X + 120.000$
Assembly (samling)	5	10	600.000	$\frac{600000}{5} = 120.000$	$\frac{600000}{10} = 60000$	$\frac{-60000}{120000} = -\frac{1}{2}$	$Y = -\frac{1}{2}X + 60.000$
Price	100	90					
- VC/VO	50	50					
CM/DB	50	40					
Random (2.000.000)	$\frac{2000000}{50}$	$\frac{2000000}{40}$					
	40.000 units	50000 units					

$\Rightarrow Slope_{\alpha} = \frac{50000}{40.000} = \frac{50}{40} = \frac{CM\ XAL}{CM\ YNG}$

1.2

$\alpha_{welding} = Slope_{CM\text{-}line}$

$2 = \frac{CM\ XAL}{CM\ YNG}$

$2 = \frac{50}{CM\ YNG}$

$25 = CM\ YNG$

Price $50 + 25 = \underline{75}$

$\alpha_{Assembly} = Slope_{CM\text{-}line}$

$\frac{1}{2} = \frac{CM\ XAL}{CM\ YNG}$

$\frac{1}{2} = \frac{50}{CM\ YNG}$

$100 = CM\ YNG$

Price $50 + 100 = \underline{150}$

(2) The price can vary within the span of 75 - 150

Assignment 2

$p = -0{,}02m + 2600$

$pm = -0{,}02m^2 + 2600m$

$MR = -0{,}04m + 2600$ | $MC = 1000 / 1500$

$MR = MC$

$-0{,}04m + 2600 = 1500$

$1100 = 0{,}04m$

$\underline{27500 = m}$

price $= -0{,}02 * 27500 + 2600$

price $= \underline{2050}$

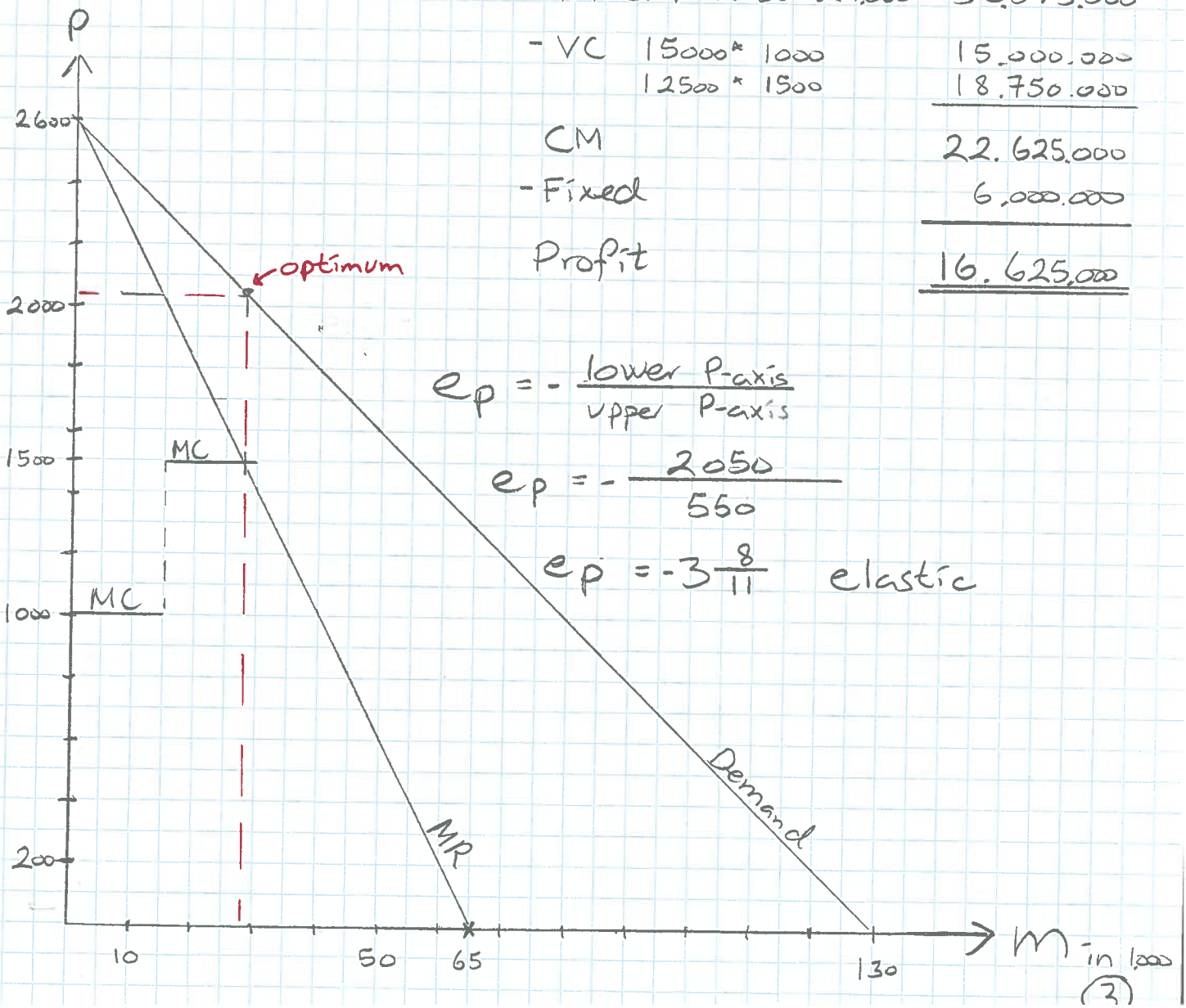
Turnover $2050 * 27.500 = 56.375.000$

- VC $15000 * 1000$ $15.000.000$
- $12500 * 1500$ $18.750.000$

CM $22.625.000$

- Fixed $6.000.000$

Profit $\underline{16.625.000}$



$e_p = -\frac{\text{lower P-axis}}{\text{upper P-axis}}$

$e_p = -\frac{2050}{550}$

$e_p = -3\frac{8}{11}$ elastic

2.2 Monopoly price formula

$$\text{optimal Price} = MC * \frac{e_{p_{optimum}}}{1 - e_{p_{optimum}}}$$

$$\text{Price} = 1500 * \frac{3,727272}{1 - 3,727272}$$

$$\text{Price} = 1500 * 1,3666$$

$$\underline{\text{Price} = 2050}$$

The price is correct.

2.3

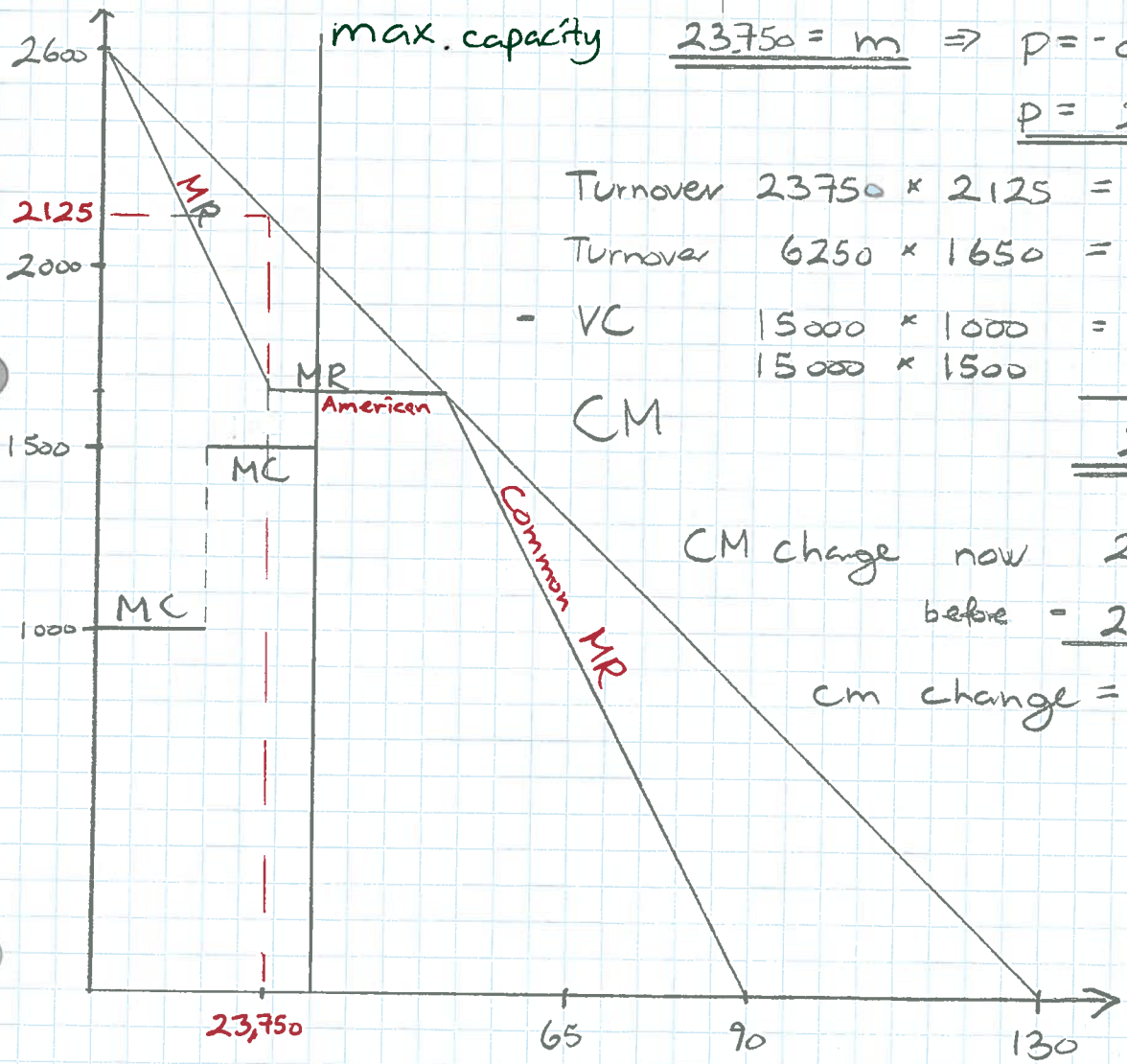
$$MR = 1650$$

$$-0,04M + 2600 = 1650$$

$$950 = 0,04m$$

$$\underline{23750 = m} \Rightarrow p = -0,02 * 23750 + 2600$$

$$\underline{p = 2125}$$



max. capacity

Turnover 23750 × 2125 = 50.468.750

Turnover 6250 × 1650 = 10.312.500

- VC 15000 × 1000 = 15.000.000

15000 × 1500 = 22.500.000

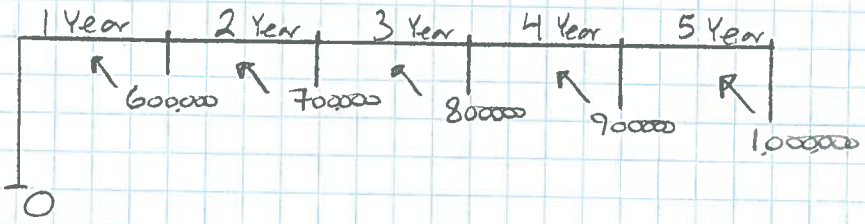
CM 23.281.250

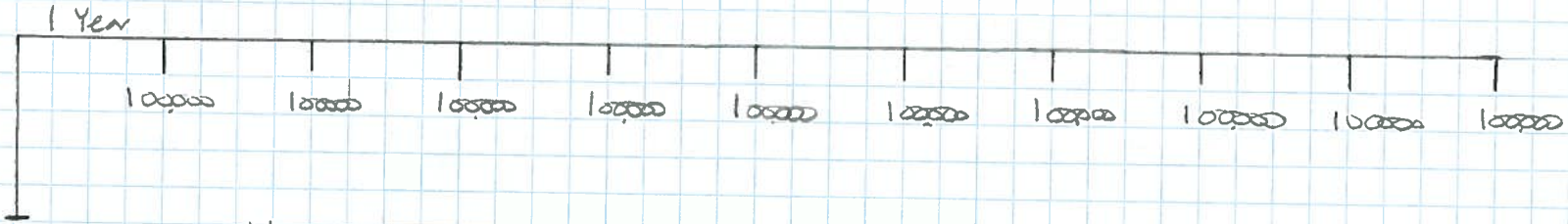
CM change now 23.281 250

before - 22 625.000

cm change = 656.250

3.1 Existing:





N : 10

I : 10

PV : - 5,000,000

PMT : ? ⇒ 813.726 + 100000 = 913.726 Total costs

FV : 0

813.726 ⇓ capital costs

100000 maintenance costs

3.2 Replace end Year 4

4) Annuity loan

N = 4 * 20 = 80

I = 4% / 4 = 1%

PV = 6.000.000

PMT = ? => -109,313

FV = 0

N = 80

I = ? => 1,2981 %

PV = (6.000.000 * 0,92) = 5420.000
- 100.000

PMT = - 109.313

FV = 0

N = 4

I = 1,2981 %

PV = 100

PMT = 0

FV = ? => 105,29

5,29 effective rate

Standing loan

N = 10

I = 4,25

PV = 5,500.000

PMT = ? => - 233.750

FV = -5,500.000

N = 10

I = ? 4,36 %

PV = 5.500.000 - 50.000 = 5.450.000

PMT = - 233.750

FV = - 5,500,000

4,36 effective rate

Best liquidity

Best and cheapest loan