Assignment 1 13. August 2009

1.1 Demand $p = -15Q + 12.000$

Turnover $pQ = -15Q^2 + 12000Q$

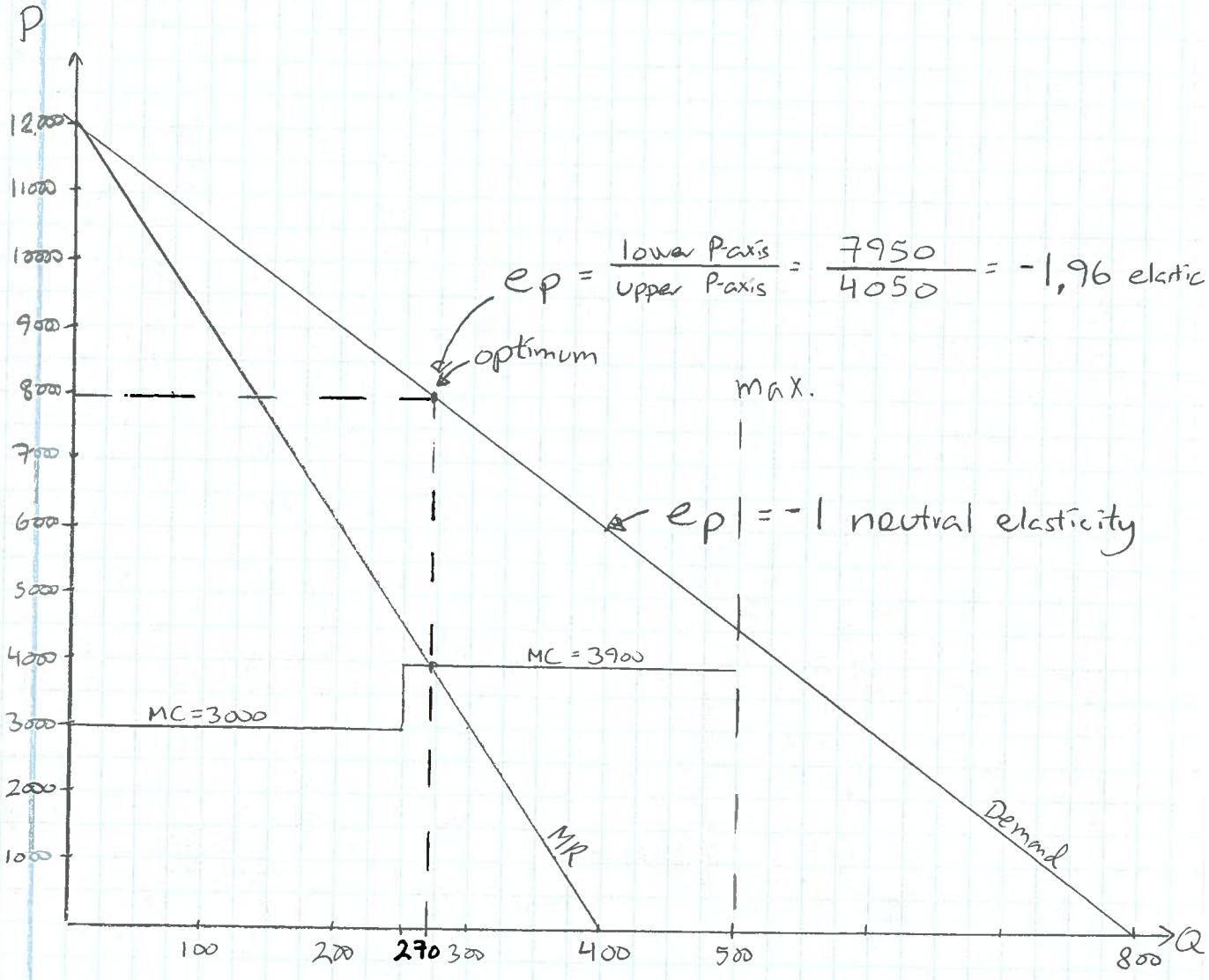
MR $p\dot{Q} = -30Q + 12000$

$FC = 0$

$VC = 3000Q$ ($< 250Q$) / $3900Q$ ($> 250Q$ max. 500)

$TC = 3000Q$ / $3900Q$

$MC = 3000$ / 3900



$e_p = \frac{\text{lower P-axis}}{\text{upper P-axis}} = \frac{7950}{4050} = -1{,}96$ elastic

$|e_p| = -1$ neutral elasticity

$MR = 3900\ (MC)$

$-30Q + 12000 = 3900$

$8100 = 30Q$

$\underline{270 = Q}$

$p = -15 * 270 + 12.000$

$\underline{p = 7950}$

Turnover / oms	7950 * 270	=	2.146.500
- VC / VO	250 * 3000 + 20 * 3900	=	828.000
CM / DB			1.318,500

1.2 $ep = -\frac{7950}{4050} = -1,96$ elastic $\neq -2$

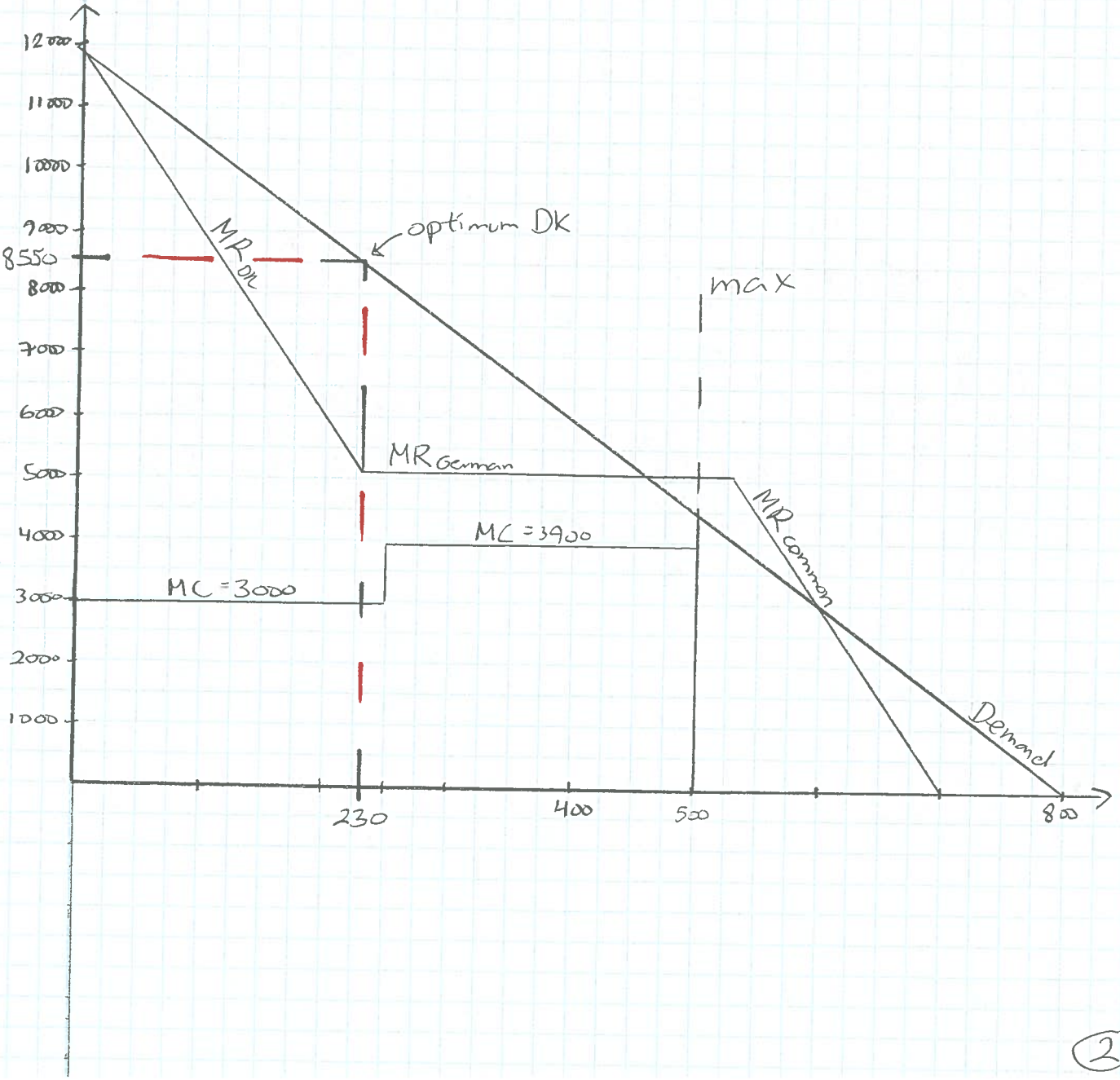
Hvis prisen sættes ned med 1% stiger mængden med 2%. dvs. omsætningen stiger

1.3 CM / DB German:

Positive CM

5.700	Price
- 600	Transport
- 3900	MC
+ 1200	

$MR_{German} = 5700 - 600 = 5.100$



$MR_{DK} = 5100\ (MR_{German})$

$-30Q + 12.000 = 5100$

$6900 = 30Q$

$230 = Q$ Denmark

$Price = -15 \cdot 230 + 12000$

$price = 8550$ Denmark

German Q = $500 - 230 = 270$ Price = 5,700

1.4

Turnover	$(270 * 5700) + (230 * 8550)$		3,505,500
	1.539.000	1.966.500	
- VC	$(250 * 3.000) + (250 * 3900)$		1,725,000
	750,000	975,000	
- Transport	$(270 * 600)$		162,000
CM / DB			1,618,500

Assignment 2

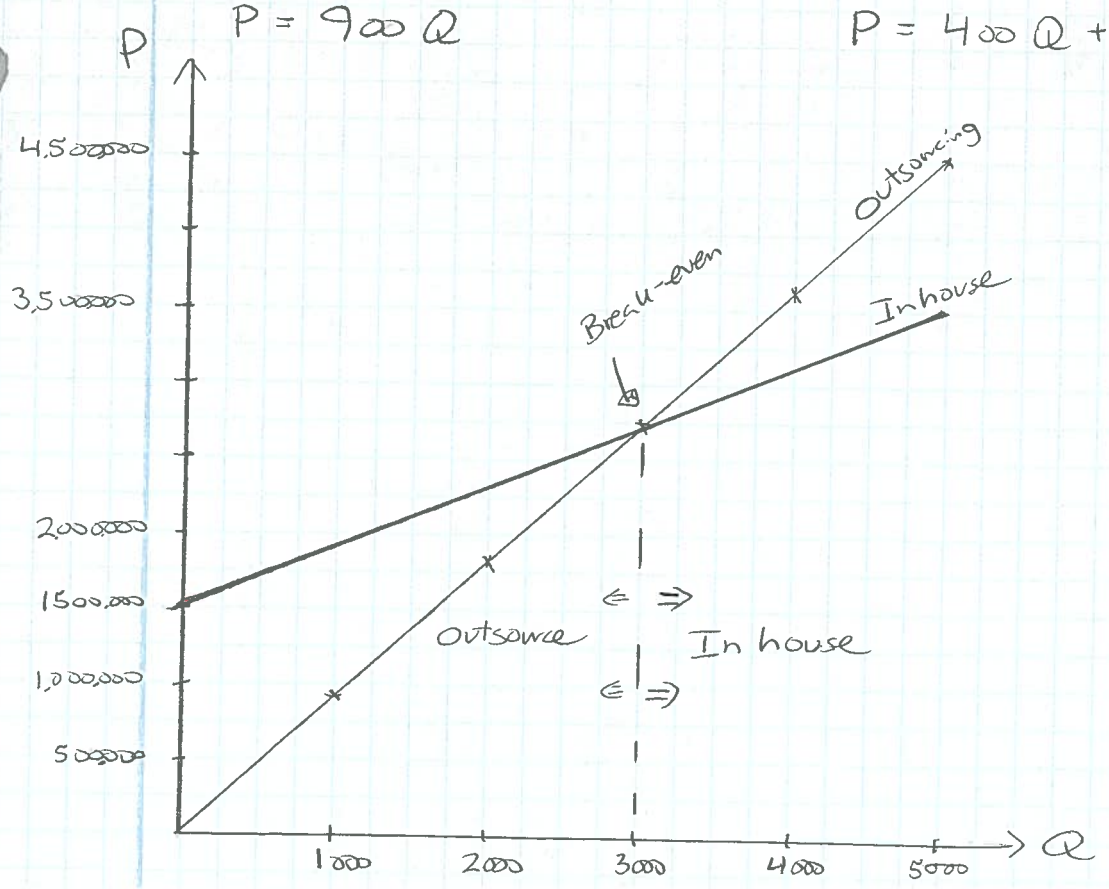
Break-even $= \frac{1.500.000}{(900 - 400)} = 3000$ units minimum to make in house production

	Pros	Cons
Outsource	* More efficient if made by a specialist. * cheaper than in-house	* lost Know-how * Supply chaine more complex * The quality? * Future price?
in-house	* flexibility * We control the proces and development * Save money	* low quality * high fixed costs * missing focus at core business.

units	Outsourcing		In house	
1000	(1000 * 900)	900.000	1.500.000 + (400 * 1000)	1.900.000
2000	(2000 * 900)	1.800.000	1500000 + (400 * 2000)	2.300.000
3000		2700.000		2700.000
4000		3.600.000		3.100.000
5000		4.500.000		3.500.000

$P = 900Q$

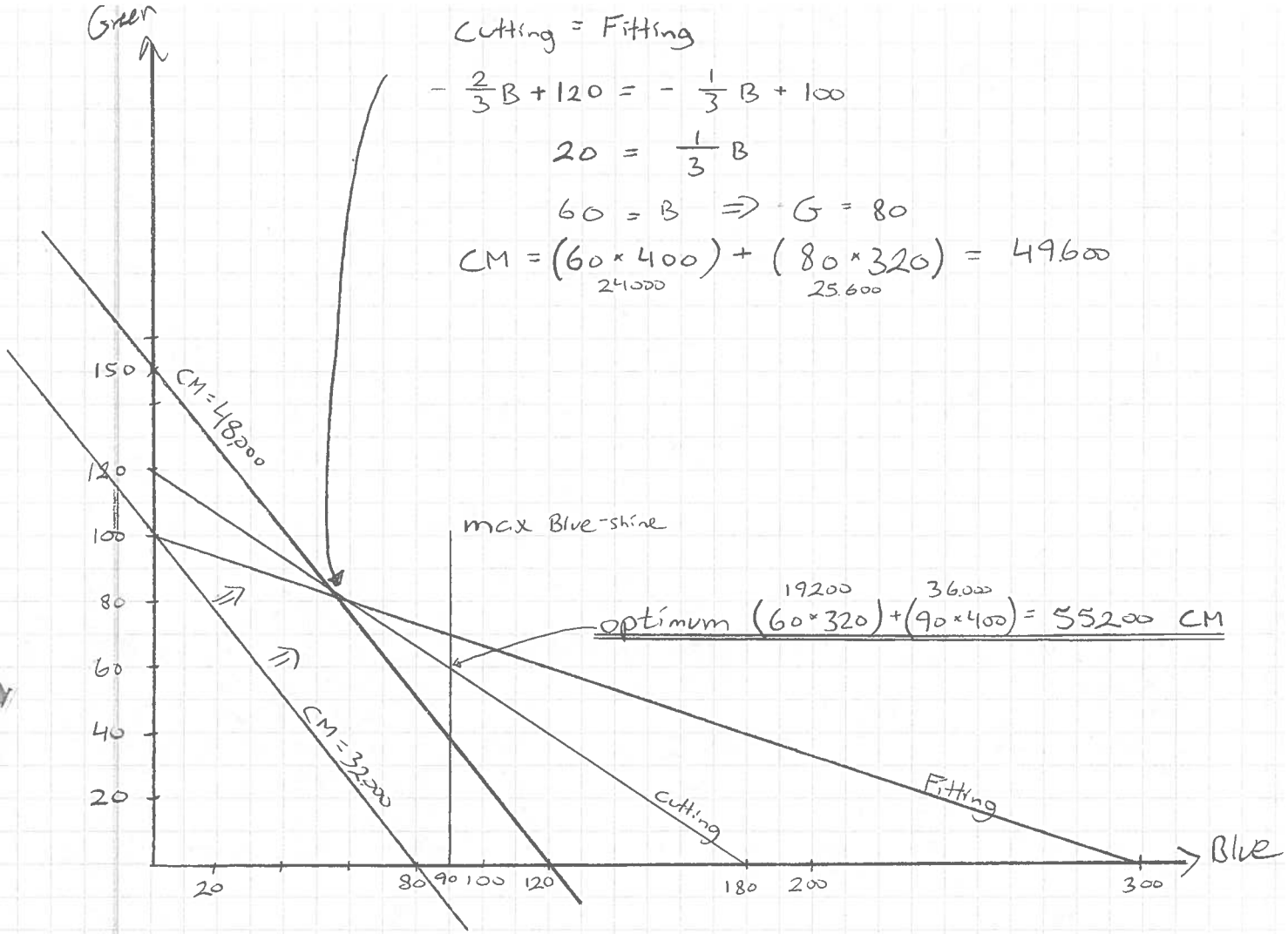
$P = 400Q + 1.500.000$



	Blue	Green	capacity	max Blue	max Green	$\propto$ Alpha	Function
Cutting	10	15	1800	180	120	$\frac{120}{180} = -\frac{2}{3}$	$G = -\frac{2}{3}B + 120$
Fitting	6	18	1800	300	100	$\frac{100}{300} = -\frac{1}{3}$	$G = -\frac{1}{3}B + 100$
Price	2500	3500					
VC	2100	3180					
CM	400	320					
Random CM line	$\frac{80}{32000} \times 400$	$32000/320$ 100 units					

$\propto_{\text{Alpha}} \frac{100}{80} = \frac{5}{4} = \frac{400}{320} \Rightarrow \frac{\text{CM Blue}}{\text{CM Green}}$

(5)



Cutting = Fitting

$$-\frac{2}{3}B + 120 = -\frac{1}{3}B + 100$$

$$20 = \frac{1}{3}B$$

$$60 = B \Rightarrow G = 80$$

$$CM = \underset{24000}{(60 \times 400)} + \underset{25.600}{(80 \times 320)} = 49600$$

optimum $\underset{19200}{(60 \times 320)} + \underset{36.000}{(90 \times 400)} = 55200$ CM

3.1 The optimal production program is

90 units Blu-shine and

60 units Green-shine

3.2 60 minutes extra cutting = $\frac{60}{15} = 4$ extra Green-shine

a) $4 \times 320 =$ 1280 DK

b) We can maximum make 70 products "Green-shine" because of the limitation "Fitting". 10 products extra 10×15 min. = $2\frac{1}{2}$ hour, price max. 3200 DK