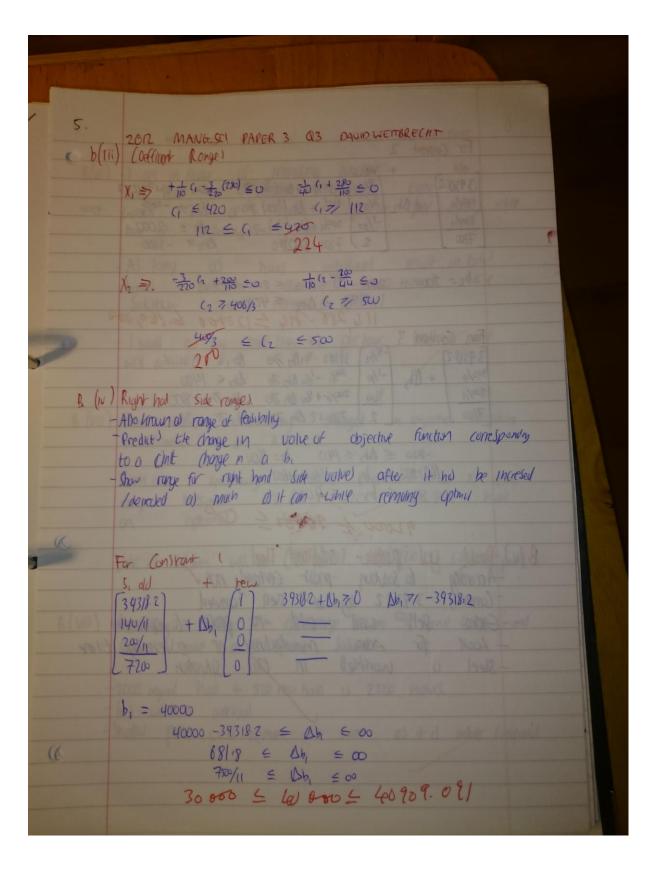
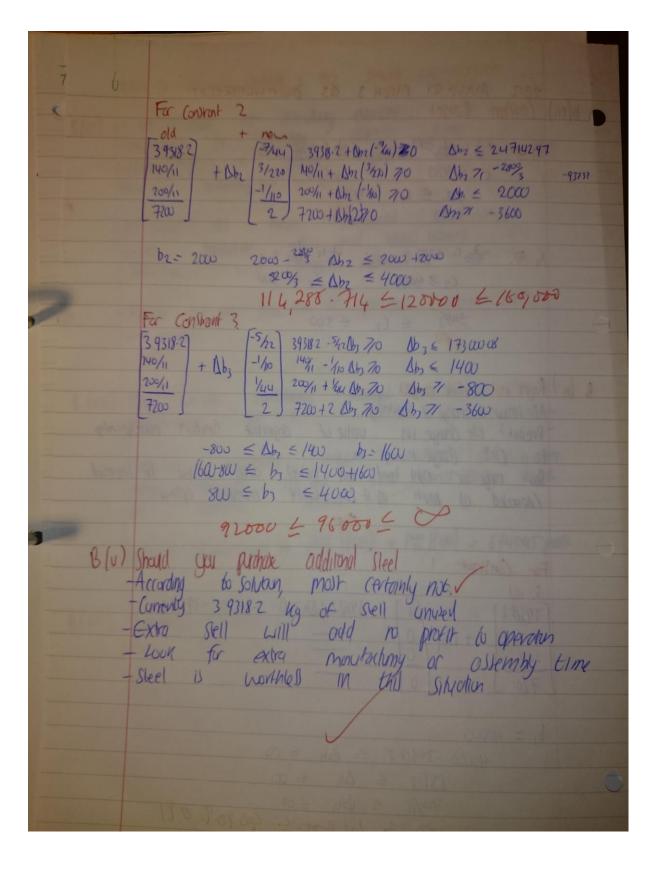
2012 MANG. SI. PAPER 3 Q3 DAUD LIETTBRECHT. 3(A) i Essential Companily of linear Programming -Ha) on objective function which is a linear function of the problem, which must be maximiled or minimilal - Has a set of constraints, each of which is a linear equality/inequality of the decision variable). (=, 7,=? - Ho n variety). Each term has a coefficient which can be positive regative or zero -Ean vonable has a higher power at 1. -A vandre and be multipled by anothe vandre ii Simplex Method - Can be used on linear Problems that are difficult to solve graphically i.e, when bere are more than 2 decision variable - Solie) Linear Program Why Gaws-Jordan matrices algorithm obs with vie of supplies variable on artificial variables iii Goral approun or were Programmy familian For 213 volumes this method is applicable, else see simplex: - Identify and lift all the dealer variable in the problem Derive a linear function in terms of these vortables, which when MUXIMUND or Minimid med be objective of the exercite Identify all the 14ml that constrain the problem (i.e. available) of lohar and goods?

Express these constraints in the form of liner equalities/impguolities Of the decision varioties SIMPLY - Do obve step with additional steps: - Change to Sandard form: - All constraints must be in form of (2) - IF @ constraint and gove variable ST. - IF @ constraint add critifical variable as
- IF @ constraint add slow and artifical words - ST and as If min poten, military O.F. by ( to change to max protein iv Prime 1 The entral solving the linear program were simplex with the objective function and continents unchanged - The "original" protes This entails changing be formulation of the liver program. Fundamental property of the primal/dual relationship Is that the opinal solution to either the primal or duct groude the some oning. - IF primal is harder to solve me choose dual. - The dul of a mea primal proton is a min proton In canonical for then primit has n deason unable, the dual will an nave in constraints.

2012 MANGESCI PAPERS & DAJIO WERERECT  First constant of dual is associated with verione x and 2nd with variable yz and so on  When primal has m constant, be dual will have m deakn variables Dual while U. associated with first primal constraint, dual variable Uz with 2nd constraint and so an  The right hand sides of the primal constraint become the objective function coefficient) in dual	
The observe function exerts at bre its primal belong RHD of dual.  Constraint exerts at the its primal variable belong life  B. Farmulate: $Y_1 = Makel 1$ $Y_2 = Makel 2$ $Y_3 = Makel 2$ $Y_4 = Y_4 = $	

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THE PERSON OF TH
7. 2012 MANG. SCI. PAPER 3 Q3 DAVID WETTERECTT.
6(vi)1 am in favour of introducing overtine.  - Each how of Overtime Oslembly time U work to of extra proter per every extra how of assembly time got.
- As long as hours introduced result in total hours between 800 and 4000 hours ere Solution will reman optimal
- I would not pay mue than \$2 per hour otherwise profit
B (VII) Here we are considering changes in objective functory.  Coefficient of X
From our sensitivity analysis, coefficient of X, can range between 112 and 420 and still had on optimal solution
Valle of Solution will be (20) (175) + (40)(280) = 674545 profit
B(VIII) Manafalluring > Constraint 2 > con range between 5200 and 4000 and still have on optimal solution
-2000 organd hors + 500 rew hows is 2500 hours.  The within inknowl -Shadow price will reman the some as it is inside interval.
price of the some as it is indeed interval

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13	2017 MANG SCI PAPER 3 Q3 CORRECTION.
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7	Solubn X, =10W x2=8W S3=40W, vote = 4240W
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	THE TIME CO. POSTER SEED OF 10 DESTRUCTOR BY MICHAEL
	Coefficient rongel.
- 100	Coeficent rongel.
- 100	Coefficient rongel: $X_1 = 20.16, +10.2 \le 0$ $t_{40}^{11} = 0.16 \le 0$
- 111	Coefficient rough. $X_1 = 7$ - 0.16, +10.2 = 0 $\frac{+1}{40}$ 6, -5.6 = 0 0.16, $\frac{7}{12}$ 6, = 274.
- 111	Coefficient panyel. $X_1 = 7 - 0.16$ , $+10.2 \le 0$ $+\frac{1}{40}$ , $-5.6 \le 0$ $0.16$ , $-7.112$ $G = 2.24$ .
- 111	Coefficient projet. $X_1 = 7$ . $-0.16$ , $+10.2 \le 0$ $+\frac{1}{40}$ , $-5.6 \le 0$ $0.16$ , $-7.112$ $G \le 2.24$ .
· (C)	Coefficient rough. $X_1 = 7 - 0.16 + 10.2 \le 0  t_{40}^{-1} (1 - 5.6 \le 0)$ $0.16 = 7.112  (1 \le 224)$ $1.2 \le 6 \le 224$
111	Coefficient projet. $X_1 = 7$ - 0.1 (, +10.2 = 0 $\frac{1}{40}$ (, -5.6 = 0 )  0.1 (, 7, 112

