YesterTech, a telecommunications equipment manufacturer, manufactures PDAs (P), wireless handsets (H), and blackberrys (B). They have a limited supply of common parts --- ethernet card (450 in inventory), antenna (250 in inventory), chipset (800 in inventory), battery/power supply (450 in inventory), LCD screen (600 in inventory) --- that these products use. A PDA requires an ethernet card, 2 chipsets, a power supply, and 2 LCD screens. A wireless handset requires an ethernet card, an antenna, 2 chipsets, a power supply, and an LCD screen. A blackberry requires a chipset and an LCD screen. The profit on PDAs is $80, the profit on wireless handsets is $60, and the profit on blackberrys is $35. The following is a linear programming formulation of the problem.

Let

P = Number of PDAs produced
H = Number of wireless handsets produced
B = Number of blackberrys produced

We may write a model for this problem as follows.

Maximize $80P + 60H + 35B$

subject to:

(ethernet card constraint)	$P + H \leq 450$
(antenna constraint constraint)	$H \leq 250$
(chipset constraint)	$2P + 2H + B \leq 800$
(power supply constraint)	$P + H \leq 450$
(LCD screen constraint)	$2P + H + B \leq 600$
(non-negativity)	$P, H, B \geq 0$

Implement the above model in Solver (make sure to choose Simplex as the solving method and to choose the option “Make Unconstrained Variables non-negative” --- do not explicitly put in the non-negativity constraints in the model) and using the sensitivity report only (do not resolve the problem and explain your calculation using the sensitivity report) answer the following questions.

a. Does the solution change if only 425 ethernet cards are available?

b. Is it profitable to produce Blackberrys? If not, by how much should the profit margin on Blackberrys be increased to make it profitable to produce Blackberrys?

c. Because of a change in production technology the profit margin on handsets has increased to $70. Should the production plan of YesterTech change? What is their new profit?

d. 50 chipsets were found to be defective, making the number of available chipsets 750. What will the profit be in this situation?

e. Another supplier is willing to sell LCD screens to YesterTech. However, their prices for a LCD screen are $20 higher than what YesterTech pays its regular supplier. Should YesterTech go ahead and purchase these electronic units? If yes, at most how many units should they purchase.