[10] **2.** Consider the problem (from the note sheet) maximize x_1 subject to $x_1 \leq 2$, $x_1 \leq \beta$, and $x_1 \geq 0$.

(a) Solve this LP for $\beta = 1$.

(b) For this final dictionary, write out $\vec{x}_B$, $\vec{x}_N$, and A_B. Find A_B^{-1}, and using A_B^{-1} write down a dictionary corresponding to the final dictionary where β is general (rather than $\beta = 1$).

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(c) For what values of β is the dictionary in part (b) final?

(d) By performing one dual pivot, give a final dictionary for β slightly bigger than two 2.

(e) Try to do the same for β slightly less than 0. What happens?

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