EXERCISES SET 5
PRODUCTIVITY, TECHNOLOGY AND EFFICIENCY

(1) As seen in class, we suppose that the level of total factor productivity $\bar{A}$ depends on the levels of technology T and efficiency E in the following manner $\bar{A} = T \times E$. We observe that the productivity level in Country X is twice as high as that of Country Z. If the technology level in Country X is four times that of Country Z, how do the efficiency levels of the two countries compare?

(2) Relative to Canada, the productivity level in Country X is 0.5. The growth rate of technology is 1% per year. What is the level of efficiency in Country X relative to Canada if Country X lags behind Canada by 20 years in terms of technology?

(3) We have seen that the productivity level in India is 0.35 that of the USA. Suppose that efficiency levels in both countries are the same and that the growth rate of productivity in the USA is 0.81% per year. Calculate how many years India lags behind the USA?

(4) In capital cities, urban workers often have more "political clout" than rural workers. Suppose that this allows the urban workers to institute a minimum wage level in the city. This minimum wage is above the one that would prevail if labor wages were set perfectly competitively and workers could move freely between the urban and rural sectors. Show why this can create an inefficient allocation of labor between the two sectors. Who are the main losers from the higher urban minimum wage?