Trade and factor price equalization

Countries A and B are identical except for the fact that country A has more capital than country B, i.e., $\bar{K_A} > \bar{K_B}$. Everything else is the same, i.e., technology, preferences, population size, etc. There are two goods being produced, goods 1 and 2. Production requires the use of labor and capital for both goods and the production of good 1 is capital intensive compared to good 2. Both factors are assumed to be mobile between sectors but not between countries.

(a) Let Q_{1A}^{AU}, Q_{2A}^{AU}, Q_{1B}^{AU} and Q_{2B}^{AU} denote the quantities of each goods produced in each country under autarky. State the Rybsczynski Theorem and use it in order to compare quantities Q_{1A}^{AU} to Q_{1B}^{AU} and Q_{2A}^{AU} to Q_{2B}^{AU}.

(b) Let p_{1A}^{AU}/p_{2A}^{AU}, p_{1B}^{AU}/p_{2B}^{AU} denote the relative prices of the goods in each country under autarky. Based on your answer to part (a), compare those autarky relative prices. Justify.

(c) Based on the result to part (b), compare the labor real wages and capital real rental rates between the two countries under autarky. State the theorem that corresponds to your prediction. Provide a graphical representation of the equilibrium in each country in the w/r to L/K space.

(d) Use the result to part (b) in order to predict the trade patterns between the two countries once they open up to free trade. State the theorem that corresponds to your prediction. Illustrate on two graphs with the help of a PPF for each country.

(e) Compare the countries' real wages and capital rental rates under free trade. Justify. What is the expression used in the textbook that would correspond to your prediction?

(f) Who gains and who loses from trade in each country?

(g) According to your answer to part (e), compare the effects of immigration with those of free trade on workers' wages. Which of the two predictions appears more realistic? Discuss.