ECONOMICS 243 - 03
INTERNATIONAL TRADE
Spring 2010

Solutions to Problem Set 3
(Due Wed., Feb. 24, 2010)
(10 points in total)

4.3.

a.

Answer: $WL_C / RK_C > WL_S / RK_S$ (and thus $L_C / K_C > L_S / K_S$) implies that shoes are capital intensive. This is certainly possible as shown in the New Balance application.

b.

For computers: $\Delta R / R = [(\Delta P_C / P_C)\ P_C Q_C - (\Delta W / W)\ WL_C] / RK_C$

$$= [(0\%)(100) - (\Delta W / W)(50)] / 50$$

$$= -(\Delta W / W)$$

For shoes: $\Delta R / R = [(\Delta P_S / P_S)\ P_S Q_S - (\Delta W / W)\ WL_S)] / RK_S$

$$= [(50\%)(100) - (\Delta W / W)(5)] / 95$$

$$= 50 / 95 - (\Delta W / W)(5/95)$$

Substituting the computer equation into the shoes equation:

$$\Delta R / R = 50 / 95 + (\Delta R / R)(5 / 95)$$

$$= (50 / 90) = 55.6\%$$

This implies: $\Delta W / W = -\Delta R / R = -55.6\%$

c.

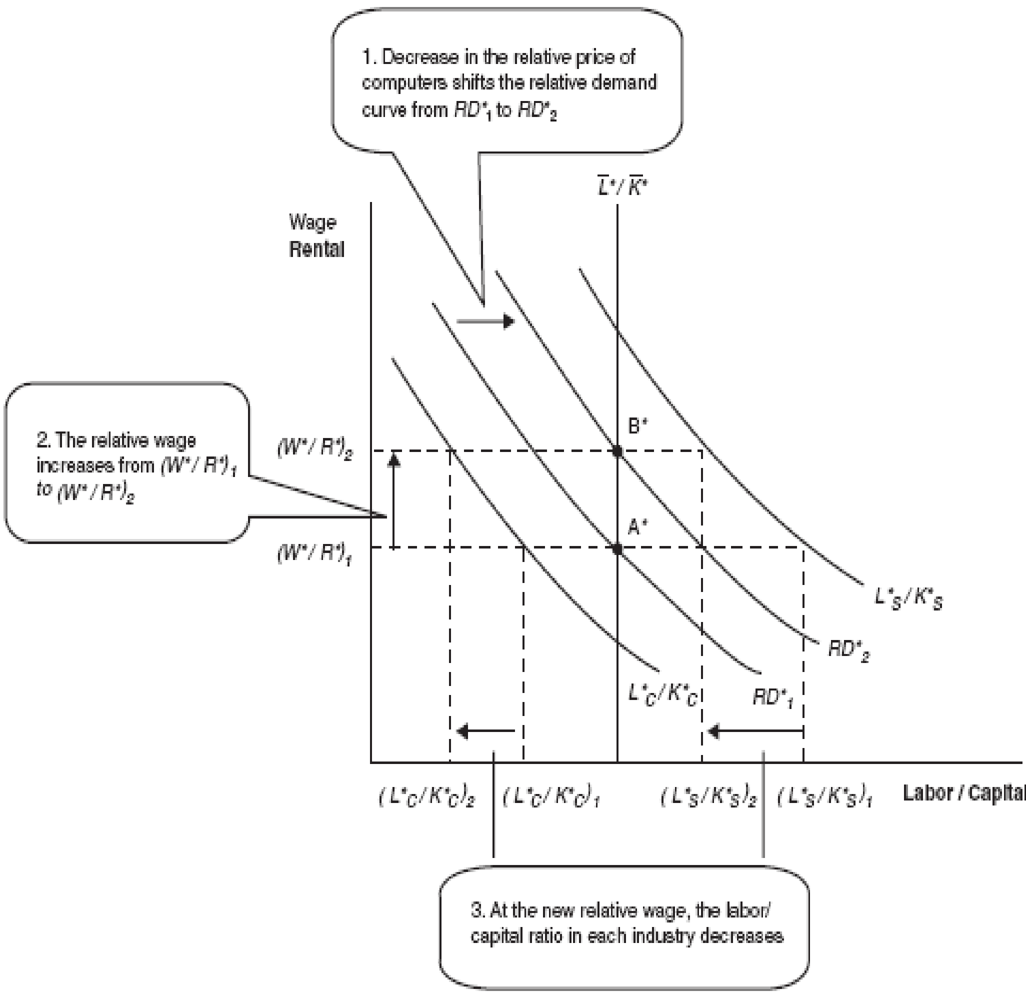
Answer: As seen in the percentage change calculation for the rental of capital in the shoe industry, the magnitudes of the changes are equal (with opposite sign).

d.

Answer: Because the increase in capital returns exceeds the price changes in both industries, capital gains in real terms. Similarly, because there is a decrease in wage and the prices of the outputs stayed the same or increased, labor loses in real terms. This is consistent with the Stolper-Samuelson theorem: In the long run, when all factors are mobile, an increase in the relative price of a good will cause the real earnings of labor and capital to move in opposite directions, with a rise in the real earnings of the factor used intensively in the industry whose relative price went up and a decrease in the real earnings of the other factor.

4.5.

Answer: With free trade the labor-abundant Foreign country will increase production of the labor-intensive good (shoes), leading to a rightward shift of the relative demand curve from RD_1^* to RD_2^*. At the new equilibrium point B^*, computers are weighted less, a fall in $(K_C^* \ / \ \overline{K}^*)$, whereas the shoe industry is weighted more, a rise in $(K_S^* \ / \ \overline{K}^*)$. As a result of the rise in the relative demand for labor in the shoe industry, the relative wage increases, which in turn lowers the labor/capital ratio in both industries.



4.6.

a.

Answer: Russia is labor abundant because it imports the capital-intensive good.

b.

Answer: Russia will specialize in the labor-intensive product, which will lead to an increase the relative demand for labor in the labor-intensive industry. This causes an increase in the relative wage. The higher relative wage cuts the number of workers hired per unit of capital in the labor-intensive industry, thereby reducing the labor/capital ratio. By the law of diminishing returns, the decrease in the labor/capital ratio leads to a rise in the marginal produce of labor in both industries. Thus, the real wage will increase in Russia following trade.

c.

Answer: The real rental on capital will decrease because the world relative price of automobiles is lower than Russia's no-trade relative price. More specifically, with a lower labor/capital ratio in both industries, the marginal product of capital decreases so that the real rental on capital falls.

d.

Answer: The capital owners will support policies to limit free trade because they suffer a loss due to the decrease in the relative price of automobiles when Russia engages in trade.

4.10

a.

Answer: Landowners in the United States, Brazil, and Canada benefit from free trade since the production of soybeans intensively uses land as a factor of production.

b.

Answer: Landowners in China, Mexico, Japan, Italy, and France lose from free trade because the world-relative price of soybeans is lower than each country's no-trade equilibrium price.

c.

Answer: The move to free trade in soybeans is likely to have little or no effect on the land rental in Australia and Russia because their import and export of the product is about equal.