1.1

	MPL_i^C	MPL_i^J	MPL_i^C/MPL_i^J
Oil	20	2	10
Fish	8	1	8
Honey	8	2	4
Guava	2	1	2
Timber	3	4	0.75

Cuba has absolute advantage in Fish, Oil, Honey and Guava. Jamaica has absolute advantage in Timber.

1.2

Cuba exports Oil and Fish and imports Honey, Guava and Timber. Jamaica exports Honey, Guava and Timber and imports Oil and Fish.

The condition to determine which country imports/exports each good is following: if $\frac{P_C}{P_J} < 1$ then Cuba exports and Jamaica imports. Conversely, if $\frac{P_J}{P_C} < 1 \leftrightarrow \frac{P_C}{P_J} > 1$, then Cuba imports and Jamaica imports. Since, $w_i = P_i \cdot MPL_i$ for both countries, we have condition equivalent to

$$\frac{P_C}{P_J} < 1 \leftrightarrow \frac{MPL_C}{MPL_J} > \frac{w_C}{w_J}.$$

Because $\frac{w_C}{w_J} = 6$, Cuba exports Oil and Fish as $\frac{MPL_C}{MPL_J}$ (Cuba´s relative productivity advantage) for these goods are respectively 10 and 8; and imports Honey, Guava, Timber as $\frac{MPL_C}{MPL_J}$ (Cuba´s relative productivity advantage) for these goods are respectively 4, 2, 0.75. Analogically follows that Jamaica exports Honey, Guava, Timber and imports Oil and Fish.

1.3

Relative demand for Cuba´s labor in terms of Jamaica´s labor is the labor force desired for producing goods in Cuba over the labor force desired for producing goods in Jamaica.

Relative supply for Cuba´s labor in terms of Jamaica´s labor is the size of Cuba`s labor force over the size of Jamaica´s labor force.

Free-trade equilibrium occurs when the relative supply for Cuba´s labor in terms of Jamaica´s labor is equal to the relative demand for Cuba´s labor in terms of Jamaica´s labor.

1.4
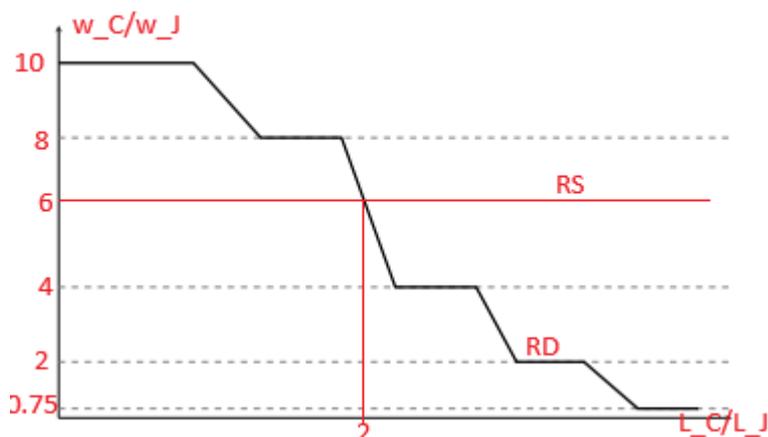
Here, $\frac{w_C}{w_J}$ is the relative price of labor and $\frac{L_C}{L_J}$ is the relative quantity of labor.

2.1

As industry output increases, average production costs decrease.

The key variable underlying the relation between average production costs and industry output in the industry that exhibits internal economies of scale is firm-specific average costs, decreasing as the individual firms increase their output. The aggregate of individual firms yields industry as a whole exhibiting economies of scale.

The key variable underlying the relation between average production costs and industry output in the industry that exhibits external economies of scale is number of firms in the industry.
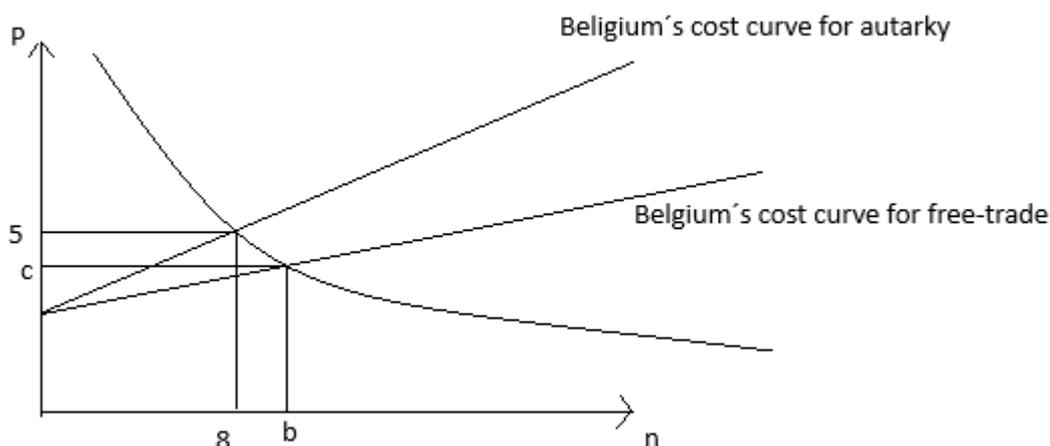
2.2 The value of a is equal to $100 + 20 = 120$, because markets merge and market sizes would just add up.

The value of c is smaller than 4, because increased competition would bring prices down in both countries, therefore it is lower than both initial autarky prices (5 and 4). Indeed, with cost function as $AC = \frac{n \cdot F}{S} + c$, we see that as markets merge (S increases), $AC(n)$ curve would rotate to right and since PP curve remains unchanged, we have price lower than both initial autarky prices.

2.3 The number of TV set brands in the integrated market (b) is smaller than the sum of the number of TV set brands in the autarky equilibria in Belgium and Luxemburg, because some firms would drop out the market, thereby reducing the number of firms selling their goods in the integrated market.

2.4

The gains from trade in the monopolistic competition model with internal increasing returns where firms have the same costs, comes from increased demand and therefore lower average costs. Together, this can mean more real profit.

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3.1 Import-demand curve (ID) of a country is the demand directed at imported goods for that country. Therefore, $ID = D - S$ or for Chad, $ID = (65 - 2P) - (5 + P) = 60 - 3P$. In autarky, $ID = 0$ or $D = S$, therefore $65 - 2P = 5 + P$, hence $P = 20$. The produced and consumed quantities are $Q_D = Q_S = 25$.

3.2 Free-trade equilibrium occurs, when domestic market price is equal to world market price. The world market grain price is equal to $P = 10$ as Chad is a small country and cannot alter the world market price as the problem also indicates with constant export-supply curve faced by Chad. Therefore, $ID = 60 - 30 = 30$ and the produced and consumed quantities are respectively $Q_S = 15$ and $Q_D = 45$.

3.3 Now with tariff being equal to $T = 5$, we have that domestic price for grain in Chad is equal to $P = P_w + T = 10 + 5 = 15$, therefore $Q_D = 35$ and $Q_S = 20$. With tariff increase producers produce more and sell at higher price, therefore producers gain from the introduction of the tariff in Chad, hence producers are winners. Consumers demand (and consume) less and buy at higher price, therefore customers lose from the introduction of the tariff in Chad, hence consumers are losers. Government collects tariff revenue, therefore it is also a winner.

The change in Chad´s consumer surplus is $-(15 - 10) \cdot \frac{35+45}{2} = -200$.

The change in Chad´s producer surplus is $+(15 - 10) \cdot \frac{20+15}{2} = +\frac{175}{2} = +87.5$.

3.4 Overall social welfare does not change as government revenue will be reaped by domestic importing firms, who buy at a cheaper price from the world market and sell at a higher price domestically.

The answer would change if import license was given to Niger. Namely, it would decrease further, because then neither the government of Chad nor Chad´s firms (who held import licenses) get the revenue, but it would benefit the foreign country`s firms.