

Practice Questions
Frank, chapter 2

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Microeconomics

Answers

Australia/Burma example: (Questions 1-6)

In A, $Q_x = 10 L_x$ and $Q_y = 70 L_y$; in B, $Q_x = 5 L_x$ and $Q_y = 50 L_y$

Note:

- a. Both productivity coefficients are larger in A (10, 70) than in B (5, 50) workers in A are more productive.
- b. The productivity coefficient in the X industry is twice as large in A as in B, but in the Y industry it is less than twice as large (70/50)
B is comparatively more efficient in the Y industry than it is in the X industry.

Qu.1: D. Australia has the absolute advantage in both goods; see (a) above.

Qu.2: C. Activity requirements are the reciprocals of the productivity coefficients. If one worker can produce 5 X-ray machines a week, it will take 1/5 of a week to produce one X-ray machine.

Qu.3: B. Since it takes 1/5 of a week to produce one X-ray machine, the minimum possible price (if there are no costs other than labor) would be 1/5 of a week's wages.

Qu.4: E. If the entire price of yogurt goes to wages, the 400 kyats would be 1/50 of a week's wage, so the wage would be $50 * 400 = 20,000$.

Qu.5: A. One more X-ray machine requires 1/10 of a week of work; in that time, a worker could have made 7 gallons of yogurt.

Qu.6: With a work force of 70 million, Australia could produce either 4, 900 million gallons of yogurt a week, or 700 million X-ray machines. The PPF would (assuming constant returns) be a straight line connecting these points.

For Burma, the PPF would run from $5 * 70 = 350$ million X-ray machines to $50 * 70 = 3500$ million units of yogurt.

Andorra/Spain example:

Given maximum production in Andorra = 2500 blankets or 5000 wineskins and wage of 2000 euros.

With a workforce of 1000 workers, we can see that the production functions are:

$$Q_b = 2.5 L_b \text{ and } Q_w = 5.0 L_w$$

Qu.7: B. Workers can make two wineskins in the time that it would take them to make one blanket.

Qu.8: D. Activity requirements are the reciprocal of the productivity coefficient.

Qu.9: 80 euros. Since workers could make 2.5 blankets per month and are paid 2000 euros per month, the minimum possible price is $2000 / 2.5 = 80$ euros per blanket.

Qu.10: $P_b / P_w = 2$ wineskins per blanket. Since wineskins take half as long to make as blankets, they will sell at half the price. There are no monetary units on relative price, since in dividing 80 euros/blanket by 40 euros/wineskin the euros “cancel out” and we are left with wineskins per blanket.

Andorra: Maximum production was 2500 blankets or 5000 wineskins; work force was 1000.
Production functions: $Q_b = 2.5 L_b$ and $Q_w = 5 L_w$.

Spain : Maximum production is 25,000 blankets or 100,000 wineskins; work force is 20,000.
Production functions are $Q_b = 1.25 L_b$ and $Q_w = 5 L_w$.

Qu. 11: E. Spain does not have an absolute advantage in either good: Andorra is twice as productive in blanket production and just as productive in wineskins.

Note that per worker productivity, not total output, is the appropriate comparison.

Qu.12: D. Spain has a comparative advantage in wineskins:

The opportunity cost of a wineskin is only $\frac{1}{4}$ of a blanket in Spain, while it is $\frac{1}{2}$ blanket in Andorra.

Qu.13: To answer the question, you must show your calculations for 11 and 12, and state clearly that:

-- absolute advantage depends on per worker productivity

-- comparative advantage goes to the low opportunity cost producer, and

opportunity costs may be found by comparing productivity coefficients or activity requirements.

Qu.14: C. Since the PPF for Andorra will run from 5000 on the Y (wineskin) axis to 2500 on the X (blanket) axis, we must look for the equation that can be solved for both of these points.

$Y = 5000 - 2X$ works, since if $X = 0$, $Y = 5000$ and if $X = 2500$, $Y = 5000 - 2(2500) = 0$.

Qu.15: A The point $X = 1250$ and $Y = 2500$ is efficient since it is on the PPF (satisfies the equation exactly)

$Y = 5000 - 2(1250) = 2500$.

Qu. 16: C. The point $X = 1000$ and $Y = 3500$ does not exactly satisfy the equation, and is impossible to attain.

$Y = 5000 - 2(1000) = 3000$, so 3000 is the maximum possible production of Y if you produce 1000 X.

Qu.17: B. The point $X = 500$ and $Y = 2000$ does not exactly satisfy the equation, and is inefficient.

$Y = 5000 - 2(500) = 4000$, so it would have been possible to produce more than 2000 Y.

Qu. 18: B. The point $X = 1500$ and $Y = 1500$ does not exactly satisfy the equation, and is inefficient.

$Y = 5000 - 2(1500) = 2000$, so it would have been possible to produce more than 1500 Y.

Shifts and rotations of the Andorran PPF: Original PPF runs from 5000 on Y axis to 2500 on X axis.

Qu.19: C. Workforce increase provides more workers who could be used in either industry.

Qu.20: D. We can still produce 5000 wineskins, but fewer blankets due to the loss of wool.

Draw a line from 5000 on the Y axis to 1250 on the X axis to see that the slope would become twice as steep if half the sheep died off.

Qu.21: D. This time, blanket production is unaffected, but if the leather-sewing machine made it possible to produce twice as many wineskins, the PPF would run from 10,000 on the Y axis to 2500 on the X axis.

If you add this line to the same graph as your PPF for question 20, you will see that it has the same slope.

Qu.22: E. If the maximum possible production of blankets doubled as a result of the change, the PPF would run from 5000 on the Y axis to 5000 on the X axis.

Qu.23: A. Changes in demand do not change the PPF, only the point that will be chosen.

Qu. 24: A. Trade again does not by itself change the PPF, though more of the export good will be produced.

Qu. 25: C. Since blankets become easier to produce, they should become cheaper relative to wineskins.