

**Question:**

**Production possibility frontier and opportunity cost.**

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Atlantis is a small, isolated island in the South Atlantic. The inhabitants grow potatoes and catch fresh fish. The accompanying table shows the maximum annual output combinations of potatoes and fish that can be produced. Obviously, given their limited resources and available technology, as they use more of their resources for potato production, there are fewer resources available for catching fish.

Maximum annual Output options	Quantity of potatoes (pounds)	Quantity of fish (pounds)
A	1000	0
B	800	300
C	600	500
D	400	600
E	200	650
F	0	675

- a) Draw a production possibility frontier with potatoes on the horizontal axis and fish on the vertical axis illustrating these options, showing points A-F.
- b) Can Atlantis produce 500 pounds of fish and 800 pounds of potatoes? Explain. Where would this point lie relative to the production possibility frontier?

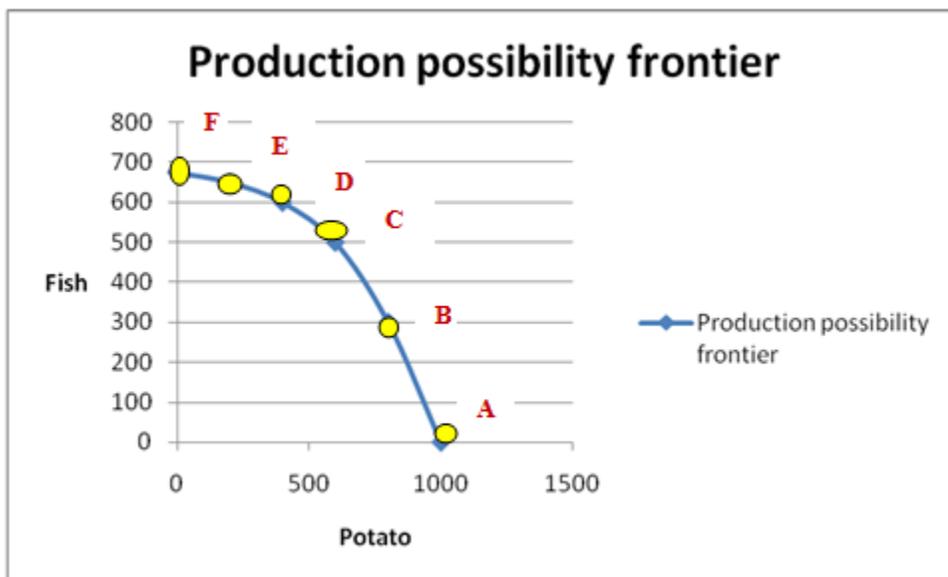


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- c) What is the opportunity cost of increasing the annual output of potatoes from 600 to 800 pounds?
- d) What is the opportunity cost of increasing the annual output of potatoes from 200 to 400 pounds?
- e) Can you explain why the answers to parts c and d are not the same? What does this imply about the slope of the production possibility frontier?

**Solution:**

- a) The production possibility frontier is shown below:



- b) No, Atlantis cannot produce 500 pounds of fish and 800 pounds of potatoes. This point lies outside the PPF and any point outside the PPF is impossible points. All points on a production possibilities curve are points of maximum productive efficiency.



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- c) The opportunity cost will be forgoing of 200 pounds of fish when there is an increase of potatoes from 600 to 800 pounds.
- d) The opportunity cost will be forgoing of 50 pounds of fish when there is an increase of potatoes from 200 to 400 pounds.
- e) The answers in part c and d are not same. The slope of the production possibility curve is known as the **Marginal rate of Transformation** or the opportunity cost. The opportunity cost is increasing as we move along the curve. In other words, in order to produce more of one good, more and more of the other good has to be sacrificed. Thus the shape of the PPF is concave. In this case, in order to increase the production of potato from 200 to 400, only 50 fish Atlantis has to sacrifice. But as the production of potato increased from 600 to 800, 200 (more than 50) fish has to be sacrificed.

Thus, MRT or the slope increases in absolute size as we move from the top left of the PPF to the bottom right of the PPF.

**\*\* End of the Solution \*\***

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