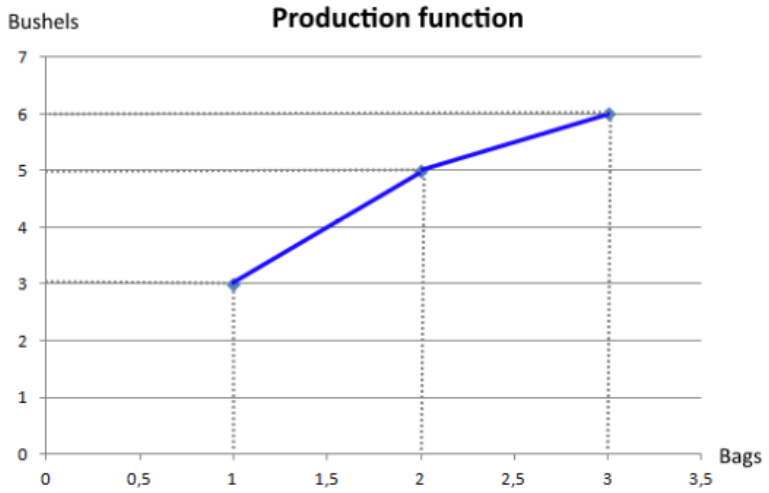
Answer on Question #56889, Economics, Microeconomics

Question

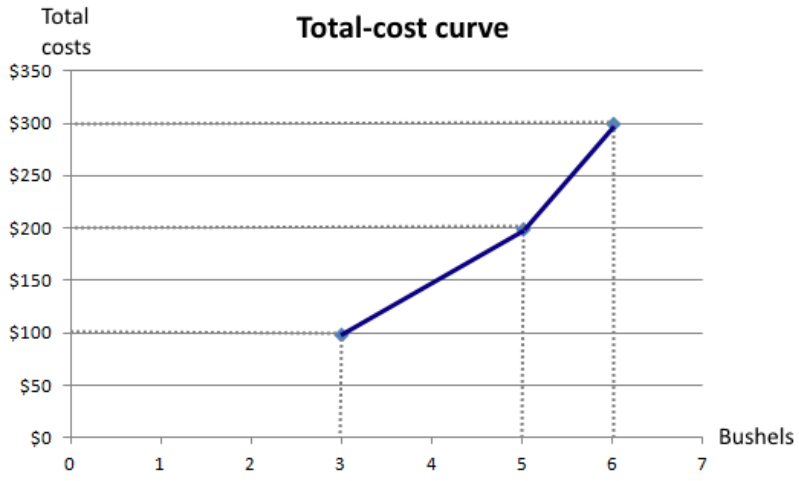
If Farmer Jones plants no seeds on his farm, he gets no harvest. If he plants 1 bag of seeds, he gets 3 bushels of wheat. If he plants 2 bags, he gets 5 bushels. If he plants 3 bags, he gets 6 bushels. A bag of seeds costs $100, and seeds are his only cost. Use these data to graph the farmer's production function (bushels of wheat against bags of seed used) and total-cost curve. Explains their shapes?

Answer

From given data farmer's production function is:



and farmer's total-cost curve is:



The production function gets flatter as the number of seeds bags increases, because of diminishing marginal product. Because of the same reason (diminishing marginal product) the total-cost curve gets steeper as the quantity of bushels (output) increases.

These effects are explained by the law of diminishing marginal product which tells us about the fall in the rate-of-increase in output of a process as the amount of input is increased, while the amount of other inputs is held constant.

In our example the law of diminishing marginal product we can confirm not only graphically, but also with numerical data:

Bags	Bushels	Marginal product
1	3	3
2	5	2
3	6	1

From the table above we see that with every additional bag of seeds we get less bushels of wheat.