EE211 section 1 Quiz 6 Answers

See your lecture note on Costs in the short run and Production in the long run

Answers the following questions with full explanation and graphs.

Costs in the short run

Suppose Kelly's Cleaners washes bags of laundry using labor (L) and capital (K).

Labor is purchased in the open market at a wage rate w = $10/ person-hr.

Capital is fixed in the short run. The relationship between the variable input and the total number of bags washed per hour is summarized in Table 1. Note that output initial grows at an increasing rate with additional units of the variable input (as L grows from 0 to 4 units), then grows at a diminishing rate (as L grows from 4 to 8 units).

The total cost of producing the various levels of output is simply the cost of all the factors of production employed. If Kelly owns his own capital, its implicit rental value is an opportunity cost, the money Kelly could have earned if he had sold his capital and invested the proceeds in.

Table 1

Quantity of labor (person-hr/hr)	Quantity of output (bags/hr)
0	0
1	4
2	14
3	27
4	43
5	58
6	72
7	81
8	86

Suppose Kelly's capital is fixed at 120 machine-hr/hr, the rental value of each of which is r = $0.25/machine-hr, for a total capital rental of $30/hr. This cost is fixed cost (FC), which means that it does not vary in the short run as the level of output varies.

Construct a table showing fixed cost, variable cost, total cost, average fixed cost, average variable cost, average total cost, and marginal cost using the information in Table 1. Then graph average fixed cost, average variable cost, average total cost, and marginal cost.

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Name_____Last 4 digits ID _____

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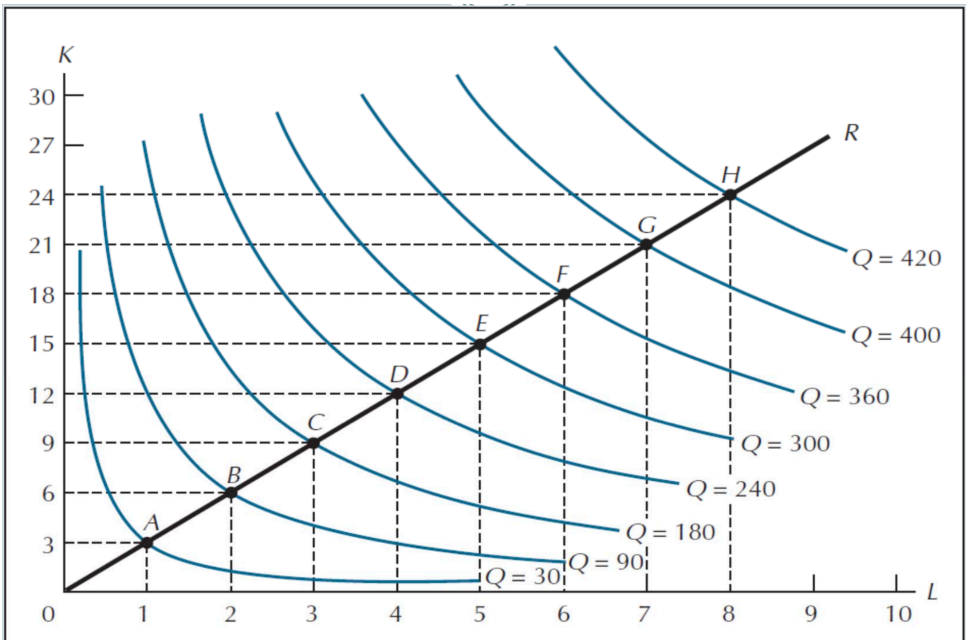
Production in the long run

Showing Returns to Scale on the Isoquant Map

Consider the isoquant map in Figure 1. As we move outward into the isoquant map along the ray labeled R, each input grows by exactly the same proportion.

Figure 1



Show your work and define whether the production function exhibits increasing returns to scale, constant returns to scale, or decresing returns to scale

In the region A to B

In the region E to F

In the region G to H