ECON 219: Problem Set #5

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Problem 1

Problem 2

An enterprising entrepreneur purchases two factorires to produce widgets. Each factory produces identical products, and each has a production function given by

$$q = \sqrt{k_i l_i}, i = 1, 2$$

The factories differ, however, in the amount of capital equipment each has. In particular, factory 1 has $k_1 = 25$, whereas factory 2 has $k_2 = 100$. Rental rates for k and l are given $w = v = \$1$.

1. If the entrepreneur wishes to minimize short-run total costs of widget production, how should output be allocated between the two factories?
2. Given that output is optimally allocated between the two factories, calculate the short-run total, average, and marginal cost curves. What is the marginal cost of the 100th widget? The 125th widget? The 200th widget?
3. How should the entrepreneur allocate widget production between the two factories in the long run? Calculate the long-run total, average, and marginal cost curves for widget production
4. How would your answer to part (c) change if both factories exhibited diminishing returns to scale?

Problem 3