## Problems

39.

A firm is considering an investment that will earn a 6% rate of return. If it were to borrow the money, it would have to pay 8% interest on the loan, but it currently has the cash, so it will not need to borrow. Should the firm make the investment? Show your work.

40.

Return to [Figure 7.7](http://openstax.org/books/principles-microeconomics-3e/pages/7-3-costs-in-the-short-run#CNX_Econ_C07_002). What is the marginal gain in output from increasing the number of barbers from 4 to 5 and from 5 to 6? Does it continue the pattern of diminishing marginal returns?

41.

Compute the average total cost, average variable cost, and marginal cost of producing 60 and 72 haircuts. Draw the graph of the three curves between 60 and 72 haircuts.

42.

A small company that shovels sidewalks and driveways has 100 homes signed up for its services this winter. It can use various combinations of capital and labor: intensive labor with hand shovels, less labor with snow blowers, and still less labor with a pickup truck that has a snowplow on front. To summarize, the method choices are:

Method 1: 50 units of labor, 10 units of capital

Method 2: 20 units of labor, 40 units of capital

Method 3: 10 units of labor, 70 units of capital

If hiring labor for the winter costs $100/unit and a unit of capital costs $400, what is the best production method? What method should the company use if the cost of labor rises to $200/unit?