## Problems

16.

Praxilla, who lived in ancient Greece, derives utility from reading poems and from eating cucumbers. Praxilla gets 30 units of marginal utility from her first poem, 27 units of marginal utility from her second poem, 24 units of marginal utility from her third poem, and so on, with marginal utility declining by three units for each additional poem. Praxilla gets six units of marginal utility for each of her first three cucumbers consumed, five units of marginal utility for each of her next three cucumbers consumed, four units of marginal utility for each of the following three cucumbers consumed, and so on, with marginal utility declining by one for every three cucumbers consumed. A poem costs three bronze coins but a cucumber costs only one bronze coin. Praxilla has 18 bronze coins. Sketch Praxilla’s budget set between poems and cucumbers, placing poems on the vertical axis and cucumbers on the horizontal axis. Start off with the choice of zero poems and 18 cucumbers, and calculate the changes in marginal utility of moving along the budget line to the next choice of one poem and 15 cucumbers. Using this step-by-step process based on marginal utility, create a table and identify Praxilla’s utility-maximizing choice. Compare the marginal utility of the two goods and the relative prices at the optimal choice to see if the expected relationship holds. *Hint*: Label the table columns: 1) Choice, 2) Marginal Gain from More Poems, 3) Marginal Loss from Fewer Cucumbers, 4) Overall Gain or Loss, 5) Is the previous choice optimal? Label the table rows: 1) 0 Poems and 18 Cucumbers, 2) 1 Poem and 15 Cucumbers, 3) 2 Poems and 12 Cucumbers, 4) 3 Poems and 9 Cucumbers, 5) 4 Poems and 6 Cucumbers, 6) 5 Poems and 3 Cucumbers, 7) 6 Poems and 0 Cucumbers.

17.

If a 10% decrease in the price of one product that you buy causes an 8% increase in quantity demanded of that product, will another 10% decrease in the price cause another 8% increase (no more and no less) in quantity demanded?